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ABSTRACT

Work experience programs in secondary schools were examined to determine the costs and benefits associated with them. Data on students in these programs were compared with data on students with nonschool-supervised jobs and students with no jobs. Characteristics and experiences of current and former students were compared. A random sample was selected from the 50 largest standard metropolitan statistical areas east of the Mississippi and their contiguous nonmetropolitan counties. Data were obtained from 33 high schools in 15 school districts. Information on the costs of work experience and vocational programs was obtained from school records and questionnaires given to students and school officials. The report deals with vocational education, work experience, and cost-effectiveness analysis; economic costs and benefits; effects of cooperative education on post-high school employment experiences; monetary returns; effects on personal development, education, and employment; effects on career development and on students' perceptions of school and jobs; and cooperative education and the employer. It was concluded that from a strictly monetary point of view, investment in work experience, rather than nonwork experience vocational programs, is not justified; however, many other measures indicate the program achieves other educational, developmental, and attitudinal objectives. Appendixes contain questionnaires and codes, wage regressions of current and former students, and regression and factor analyses tables. (TA)

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FINAL REPORT

Project No. V0088VZ
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COST-EFFECTIVENESS STUDY OF WORK EXPERIENCE PROGRAMS

A Research Project in Vocational Education
Conducted Under
Part C of Public Law 90-576

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by

Morgan V. Lewis, Gerald P. Glyde, Daun E. McKee
and Lee Ann Kozak
with the assistance of
Lenley Lewis, Ronald M. Crandall, and Patricia E. Flanary

Jacob J. Kaufman, Project Director

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Institute for Research on Human Resources
The Pennsylvania State University
University Park, Pennsylvania 16802

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PREFACE

In this study of school supervised work experience programs, in which the basic purpose is to examine its cost-effectiveness, we have an opportunity to set forth not only the necessary and sufficient conditions for the conduct of such a study, but also to stress the fact that the cost-effectiveness approach, despite its limitations of the methodology and the quality and availability of data, is a first approximation of explicitly determining whether society should continue to invest in such a program.

But we have an equally fortunate opportunity to demonstrate that the cost-effectiveness approach is not solely a materialistic, dollar and cents method of examining an educational program which ignores other important humanistic and social values. In this study we find that the *extra* costs of school supervised work experience programs exceeds the *extra* dollars earned in the labor market as compared with regular vocational programs. But the study also reveals that there are positive gains made in the personal development of students as well as their school and on-the-job attitudes and satisfactions.

It is not the responsibility of the project staff to decide whether these *extra* costs justify the continuation of the program which yields positive effects outside of the labor market. That is a decision for society and educational administrators, not for analysts. However, the analysis provides the basis for making decisions based on reasonable information, rather than guess and intuition, for society in general and administrators in particular. We cannot emphasize too strongly that all decisions are essential cost-effective decisions. The only issues are whether or not they are explicit or implicit, correct, or incorrect. The cost-effectiveness methodology attempts to make the factors explicit and, hopefully, correct. We would urge educational administrators to begin to accept this approach with the methodology.

In the conduct of the study, many persons were involved. Although the project director suggested the study and provided general supervision of the project, the principal investigator, Morgan V. Lewis, assumed the major burden, and was primarily responsible for writing the Executive Summary and Chapters 2, 6, and 7. Gerald P. Glyde had primary responsibility for Chapters 3 and 5. Daun E. McKee assisted in the certain aspects of the field work and contributed to Chapters 1 and 7. Lee Ann Kozak was involved in the writing of Chapter 4; Ronald M. Crandall, Chapter 8; and Patricia E. Flanary, Chapter 1. Finally, Lenley Lewis had a heavy editorial, re-writing, and reorganizing responsibility to make the report readable and logical in its presentation.

We should acknowledge the work of the secretarial staff which went through the traumatic experience of repeated revisions--Bonnie Grove, Debra Schultz, and Cindy Layser.

Special appreciation should also be expressed to Rick Brewer and Sarah Crandall who handled the task of digesting the data via the computer.

Needless to say, the cooperation of the various personnel in the individual schools and students was essential to the conduct of the study. The many persons involved are too numerous to mention.

Jacob J. Kaufman
November 22, 1976

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EXECUTIVE SUMMARY

Introduction

The terms "cost-effectiveness" and "work experience" in the title of this report imply that this study will answer the question: "Do the results of school supervised work experience programs justify their costs?" It should be stated at the very beginning that the answer to this question cannot be a simple "Yes" or "No." The results that were obtained cover a variety of outcomes that could be influenced by work experience and they are not all clearly positive or negative.

As a broad generalization, work experience programs do appear to accomplish their objectives while the students are in school but the evidence on program effects after the students leave school is more mixed. The work experience students studied while they were in school were found to like their courses more, to work in jobs that required more skill and were more related to the skills they were studying, and to report they were learning more on these jobs than students in the comparison groups. The former work experience students who were followed up were also more likely to be employed in higher skilled jobs which were more related to their training than students in the comparison group. Their apparent higher skill levels, however, were not reflected in the wages they received or in their satisfaction with their jobs.

The failure to find significant differences between the wages of work experience students and others, to which they were compared, poses a particular inconsistency for the cost-effectiveness analyst. It is in conflict with the most accepted theory of investment in education, human capital theory. Under this theory, educational expenses are justified by their contributions to the future productivity of the student. This productivity is best measured by the earnings which the student can command in the labor market. When the earnings of the student who has been the recipient of extra investment are not higher than those who did not receive the investment, the value of the investment is questionable.

In this particular study, it was found that work experience programs are more expensive. They are more expensive primarily because supervision of the job placement by a coordinator is an expense added to the regular costs of in-school instruction. It was also found that virtually all the measures of the results of this extra expense as reflected by the students are positive. Work experience makes school a better educational and more enjoyable experience. Yet the better education which the work experience students appear to have obtained was not reflected in the wages they received when they left school.

Do the other educational and attitudinal effects of school supervised work experience justify its extra cost even if these effects do not lead to extra earnings? This question a study of this type cannot answer. What the study can and does do is to quantify the inputs and outputs of the program and thus provides explicit information on which decision makers can base their judgments. The manner in which this study went about gathering its data and its major results are summarized below.

Conducting the Study

The Sample. The population from which the sample was drawn was defined as the fifty largest standard metropolitan statistical areas east of the Mississippi River and their contiguous nonmetropolitan counties. For a school system to be included in the study, it had to offer a school supervised work experience program for which students received academic credit. A sample of six of the districts serving the major cities in this area were randomly selected and asked to cooperate in the study. When the cooperation of each central city systems was obtained, a suburban and a rural district in the same geographic area were randomly selected and contacted.

Response Rates. Out of twenty-three districts that were selected as suitable for the study, fifteen agreed to participate. In these fifteen districts, data were collected from thirty-three high schools. Self-administered questionnaires were collected in May of 1975 from 2,854 students who were at that time in work experience programs or in comparison groups of students with similar characteristics. These 2,854 students represent 73 percent of the students originally asked to participate. Mail questionnaires were obtained from 2,253 former students who had been graduated in years 1972 through 1974. Three mailings and personal follow-ups yielded a response rate of 43 percent of the original sample or 51 percent of the sample that was contacted (original sample minus undeliverable letters). Comparisons were made across the mailings and personal interviewer contact and showed that females were more likely to have responded to the first mailing. This bias was controlled by the analyses which presented male and female results separately.

Information on race, IQ, and grade point average were obtained from the school files of those students for whom where appropriate releases had been obtained. School officials of the fifteen districts completed questionnaires on the costs of work experience and in-school programs.

Classifications for Analysis. Classifying the various work experience programs offered by the fifteen districts which participated in the study proved a difficult task. They ranged from the cooperative education model in which job placement is closely related to in-school instruction over a broad spectrum of workstudy program with varying degrees of supervision and integration with school studies. It was decided that all the noncooperative programs would be grouped into a single category. However, even implementing this definition had its difficulties because of missing data and contradictions between information provided by the schools and students, themselves. Finally, it was decided to base the categories on information provided by the students themselves.

Among the current students, those who reported they were enrolled in regular vocational courses and were employed in jobs where they and their employers were visited by a school coordinator were defined as co-ops. Students who were not in regular vocational courses but were in school supervised jobs were classified "work-study." Students who worked at jobs without school supervision were labeled "part-time," and those without jobs were classified "no job." Among the former students, the co-op and work-study definitions were the same, however, it was not possible to separate those who had worked part-time while in high school from those who had not. Consequently, these groups were combined and labeled "comparison." Whenever references are made to work experience programs, in general, they include both co-op and work study programs.

Once these classifications were derived, comparisons were made across the students in the various groups on their personal and educational backgrounds. There is some evidence from other studies, and indeed from the comments of the coordinators themselves, that their best students are the most likely to be placed in co-op jobs. This is, of course, a very reasonable strategy for the schools to follow. The coordinators wish to preserve the willingness of employers to accept their students so they send them their best students. There was little evidence, however, that the co-ops differed significantly in race, family background, or academic ability from the other students.

Where the current co-ops did differ significantly from the other groups was in the vocational programs in which they were enrolled. Among the male students, half of all the current co-ops were in the distributive education program. In the other groups the figure was only about 10 percent. Among the females, distributive education was also higher among the co-ops--30 percent compared to 10 percent. The proportion of females in office occupations, however, was about one-half across all groups.

Among the former students, trade and industrial was the dominant vocational program of males and office occupations was dominant among females. These programs were fairly equally distributed across the groups.

Since very few of the analyses presented in this report are by program, these differences in the compositions of the groups which are compared should be considered when evaluating the results obtained.

Economic Costs and Benefits

Calculation of Costs. Costs for work experience and in-school programs were calculated using data provided by the schools on the number of teachers and coordinators, their salaries and fringe benefits, coordination-related expenses, consumable supplies, and repair costs. The measure of educational output used was student enrollment, expressed in terms of average daily attendance. According to the cost analysis, work experience programs entail an added cost per student of about $125. Current enrollments in work experience programs appear to be well below the level that would lead to optimal functioning.

This finding will probably stand in contrast to the day-to-day experience of the average vocational educator who "knows" that the student who is placed on the job costs less than the student in the classroom. After all, the educator will argue the student on the job does not take up classroom space and teacher time or use school equipment or materials. How can the work experience student cost more?

The answer appears to lie in the extra costs of school supervision of job placement--primarily the cost of the coordinator's salary and travel--and the fact that the other major in-school cost--teacher salaries--are the same whether the student is on the job or in the shop. Data both from the schools and the students indicate that the average co-op student spends almost as much time receiving classroom instruction as the nonco-op. The information this study was able to gather does not indicate any savings accruing to the schools from job placements of their current students.

Economic Benefits. Among the current students the appropriate comparison for the economic effects of participating in work experience programs is with those students who worked part-time in jobs that were not school supervised. When this comparison is made, there is little evidence that school supervision increases earnings. It clearly is not associated with higher wage rates, and when earning advantages were found, they were usually due to longer hours and less unemployment.

Among the former students the results were much the same as for the current students. Wage rates did not differ across the groups, but co-ops did experience slightly less unemployment. As was noted above, wage differences were not found despite the fact that most of the evidence indicates that work experience students, especially co-ops, have more marketable skills.

From a strictly monetary point of view, then, investment in work experience, rather than nonwork experience vocational programs, is not justified. Even though work experience graduates do not earn higher wages in the first two years after graduation, however, many other measures indicate the program achieves other educational, developmental, and attitudinal objectives. These effects are discussed in the next sections.

Effects on Personal Development, Education and Employment

Career Development

Course Choices. Career choices are not one-time events that occur in the ninth or tenth grade which students must then follow the rest of their lives. They are instead the result of developmental influences only some of which the school can affect. The current students were asked several questions on the reasons underlying their choices of their courses of study. All of the students rated hobbies, leisure time, activities, and part-time or summer jobs as the experiences that had the most influence on their choices. Students who had school supervised jobs reported having more, and more helpful experiences.

Post-High School Plans. Most of the students reported preparation for employment or further schooling as the most important reasons for choosing their courses of study. The co-ops reported preparation for employment more frequently than any other group. Almost half of the current students, more so females than males, planned to continue their formal education after graduation. The results from the former students showed that these plans were largely realized: the co-ops were more likely to hold jobs; the comparison groups were more likely to attend school or college full-time. Females in office occupations and health programs and males in technical programs were especially likely to continue their high school training in a post-secondary setting. The former co-ops were more likely to receive on-the-job training from their employer.

Occupational Knowledge. Holding a job while in school, either school supervised or part-time was associated with higher scores on a test of occupational knowledge. Co-ops scores were significantly higher than work-study or part-time students, both of whom scored higher than students without jobs. These results were found even when the influence of difference in personnal characteristics, such as sex, race, and IQ, were held constant.

Job-Training Relatedness. School-supervised jobs were more likely to be related to courses than part-time jobs. The percentages of current students who hoped to find jobs related to their educational training after graduation was low, however, for all groups, perhaps because taking cooperative jobs reflects exploratory behavior, or perhaps because students enroll in cooperative programs simply to obtain jobs without planning to continue similar work after graduation. The average vocational student (with the exception of females who study office occupations, for whom job-training relatedness was high) had about a 50 percent chance of finding a post-graduation fulltime job related to the field studied in high school.

Students Perceptions of School and Jobs

Many attitudinal effects are often claimed for work experience programs and, in general, the results of this study support those claims. Questions concerning the effects of holding a job on such factors as satisfaction with courses, relationships with teachers, participation in extracurricular activities, and learning of new skills were asked the current students in two different ways. Their responses to these separate measures of the same factors were consistent and discriminating.

Satisfaction with School. Most students, especially females, liked school and were satisfied with their education. Co-op students were more likely than part-time workers to report that they were well prepared for their jobs and that they were learning more both in their courses and on their jobs.

Although not really dissatisfied with school, the work-study students usually showed up as a little less satisfied on the attitudinal items. They were, for example, more likely to feel other students and teachers looked down on them and the most likely to report they seriously considered dropping out of school. It is to this type of student, of course, to whom most workstudy programs are directed, and the results from this study suggest that these programs did help to retain them in school and to make school a more enjoyable experience.

One of the potential costs to the individual student from participating in a work experience program is less time for other activities, particularly other school activities. This did not appear to be a special problem for the work experience students in this study. They did participate a little less than other students in some activities like interscholastic sports. For the co-op students, however, this appeared to be more than compensated for by their membership in vocational clubs such as the Vocational-Industrial Clubs of America and the Future Business Leaders of America.

The former students were asked to rate the relationship between the jobs they obtained after leaving school and the training they received while in school and how well their training had prepared them for these jobs. The patterns of these ratings reflected the job-training relatedness results discussed above: co-op students were more likely to obtain jobs which were the same or highly related to the occupational areas they studied. This was especially true of females from office occupations. As would be expected, the more jobs were related to the skills studied, the higher the students rated their preparation for these jobs. Among the students who did not get related jobs, who constitute of a majority of those studied, the ratings of preparation were much more negative. About two-thirds of the males and half of the females in the work-study and comparison groups reported either they had not studied occupational areas that prepared them for their jobs or that the training they received gave them little or no preparation.

The final attitudinal area investigated concerned feelings of self-esteem and personal competence. It seemed reasonable that young people who have had actual job experience might feel more self-assured and capable. The items used to measure these feelings failed to reveal any difference across the various groups. This may have been due to internal weaknesses in the items themselves. An analysis of the students' responses indicated that they tended to reflect positive and negative wordings of the items more so than other content.

Cooperative Education and the Employer

To obtain the employer perspective on cooperative programs, a small pilot study of 68 firms was conducted by mail. On balance, these programs appear to offer many advantages to employers that tend to outweigh the disadvantages that some employers feel are associated with hiring co-op students. Although co-ops entail higher costs for supervision (as might be expected due to the training nature of the co-op experience), they are usually paid lower wages and receive fewer fringe benefits than regular employees. In addition, co-ops are less likely to leave their jobs or to be absent from work. Participating in cooperative education programs can also reduce employers' recruitment and screening costs.

Employers in different industries tended to rate the performance and costs of co-ops differently. Employers in wholesale and retail trade were more likely to rate the quantity and quality of work produced by co-ops highly than were representatives of other industries. Firms that had more experience with cooperative employees tended to pay them higher wages.

Policy Implications

Earnings. If only the work experience students, or at least the co-ops, had been found to earn higher wages! So many evaluations of education programs fail to detect any of the effects usually claimed for the programs. This study found that cooperative and work study programs achieve almost all their objectives in-school and some of their objectives after their students leave school, but it did not find these students earned more. On a strictly economic basis, therefore, these programs are not cost-effective. On almost any other measure the programs are effective, but these other measures cannot be reduced to a simple monetary ratio.

If the work experience, especially co-op, students are better prepared why do they not command a higher wage rate in the labor market? At least two explanations suggest themselves. One is that in a loose labor market employers can be more selective. Instead of bidding for the more qualified worker with higher wages, they can raise their hiring criteria. The study produced some support for this explanation. It was found that co-op students were more likely to enter the labor market after leaving high school and had slightly less unemployment when they did so. The results from the employer questionnaire also indicate that co-ops are paid less while in the cooperative program and about half of these students stay on with their employer after they graduate. It may be that their rate of increase from the lower starting point is not sufficient to produce an advantage over nonco-ops who obtain their jobs after leaving school. The second possible explanation is that the co-ops are trading higher wages for on-the-job training. The co-ops were the group most likely to receive such training. This may eventually yield an earnings advantage which was not detected in the two-year period covered by this study.

Costs. On the cost side, again contrary to expectations, the costs of work experience programs were higher than similar in-school training. To the casual observer, this is hard to believe. How can a student who is out of school for part of the day cost more than the student who is in school full-time? The answer appears to lie in the coordination function and the "added-on" feature of work experience programs. Obviously it cost money to pay coordinators' salaries and travel expenses. What is not so obvious is that work experience programs appear to be "added to" instead of "substituted for" other educational activities.

The information provided both by the schools and the students indicates that students in work experience programs spend as much time, or almost as much, in regular classes as students who are not in these programs. This may be due in part to the manner in which the questions were asked for they focused on time spent in vocational courses. The work experience students may spend as much time in these courses, but less time in nonvocational courses. The questions were not designed to detect saving resulting from work experience programs in nonvocational areas.

If work experience programs do permit savings in school costs which were not detected in the present study, the cost figure for the programs would be reduced, and the possibility of a positive cost-effectiveness ratio would be increased.

Job-Training Relatedness. The proportion of all vocational students who obtained jobs following graduation which were related to their training was only about one-half. Participation in a cooperative program increased a student's chances of finding a related job a little. If vocational education, in general, and cooperative education, specifically, are evaluated on this criterion, these results are not encouraging. But perhaps this is not the most appropriate measure of performance. The results suggest that many of the students who entered vocational programs were not committing themselves to career choices. Instead, they were engaging in occupational exploration to find out what different jobs were like. The high proportion of male students in distributive education who did not plan to seek related jobs represents the prime example. Many of these students appear to have chosen this area while in school for it was the one most likely to lead to a part-time job.

These results on job-training relatedness, plus the others which indicate that work experience programs add a significant dimension to the educational experience of students, suggest that cooperative education and vocational education have been emphasizing the wrong benefits. Perhaps these programs should be promoted less to students and the public as a means to prepare young people for specific occupations and promoted more as a way to assist overall career development. For it is in this manner that a majority of students appear to view their vocational educational courses. Many students seem to enter these courses and their cooperative placements at least as much for the opportunities they provide for occupational exploration as for the training in specific job skills.

If these observations are valid, then vocational and cooperative education should be evaluated as much for their contribution to the current development of the student instead of solely as investments which will yield future payoffs in the labor market. Viewed in the current development perspective--or as an economist would say as a consumption good rather than an investment good--work experience programs clearly are effective.

Despite the problems encountered when attempting to classify the sample, and despite the difficulties inherent in attempting to quantify the costs and benefits of work experience programs, the overall conclusion about such progams must be a positive one. In general, the results of the present study indicate either no differences among the students classified as cooperative, work study, part-time, and no job; or they reveal that advantages accrue to the students who held school-supervised jobs--especially cooperative jobs that are directly related to the student's field of study. Participation in cooperative programs does seem to enhance a graduate's "employability" and to ease the transition from school to work; work study programs do seem to deter potential dropouts. Moreover, employers tend to benefit from hiring co-op students. If more precise measures of the vocational course and school supervision variables were possible, and if cost data had been separated for cooperative and work study programs, it is likely that the advantages found for school supervision would have been even more substantial.

PART I
OVERVIEW

CHAPTER 1

VOCATIONAL EDUCATION, WORK EXPERIENCE, AND COST-EFFECTIVENESS ANALYSIS: AN OVERVIEW

Introduction

The concept of work experience education arose from the vocational education movement which began in this country at around the turn of the century with the rise of industrialism. Education in the twentieth century has tended to keep students out of the world of work for increasingly long periods of time, and has been perceived to be "irrelevant" for many students. These and other conditions gave rise to work experience programs, which were designed in part to ease the transition from school to work, to make education more relevant to the student's future working life, and to prevent students from dropping out of school. The history of vocational education, the types of work experience programs that have been developed, the rationales and criticisms that have been applied to them, and their objectives and ideals are explored in this chapter. In addition, an introduction to cost-effectiveness analysis is presented so that readers may gain a better understanding of the means used in this study to explore the effectiveness of such programs.

Background

The work experience programs discussed in this report are the result of years of political battles, repeated transformations of public education programs, and numerous revisions in the stated purposes and goals of public education in a democratic society. Since the mid-nineteenth century, America has become increasingly urban and industrial. The rapid change from a basically rural population to an urban and industrial one produced serious problems for public education. By the 1800s, educators and politicians were raising questions about the role of secondary education in an urban, industrial society committed to equal opportunity.

Near the advent of the twentieth century, advocates of educational reform insisted that only education relevant to the moral and economic development of society was worthy of investment. They challenged the lack of secondary educational opportunities for any but middle- and upper-class children. The ideas of these reformers led to the emergence of what came to be known in public instruction as manual education.

John D. Runkle and Calvin M. Woodward were the prime supporters of the early manual education movement. They insisted that public education, which had become dull and repetitive, needed to achieve a balance between book learning and practical experience. The manual education movement was based on the belief that due to a need for skilled laborers to contribute to industrial efficiency in this country, the schools must assert the moral values of hard work and respect for the laboring class. It was thought that every student should at some time be exposed to manual work.[1]

Manual education was an attempt to use the public schools as one means of encouraging the people of the United States to accept the social changes occurring in the nation. No longer was individualism the primary virtue--instead, cooperative, hard labor was emphasized. Not only was the working father to be respected for his contribution to society, but the children of workers were urged to pursue vocations similar to those of their fathers. As more and more children of labor families and children of immigrants entered the public schools, educators and politicians recognized the need for schools to instill a moral code which stressed hard work. The manual education movement thus came to include goals that affected the social structure.[2]

The manual education movement reflected a general acceptance that the industrial urban era was here to stay, and that industry had become a controlling factor in social progress.[3] It was therefore argued that industry should play an active role in influencing the nature and direction of public education.[4]

Because of (1) a constant influx of poor children into secondary schools, (2) the rapidly growing number of disillusioned students who dropped out of school, (3) a continuing cry for the schools to teach children the work ethic, and (4) industry's expanding need for skilled labor, the early 1900s saw a gradual shift away from manual education to the more specialized vocational education movement. Whereas the manual education movement had emphasized an ideal--the use of one's hands as honorable work--the vocational education movement emphasized the practical goal of preparing students for specific jobs in the labor market. If the fervor and support for manual education had been powerful, those for the new vocationalism were overwhelming.

Four basic arguments were used in support of vocational education. It was said that vocational training would:

1. Promote the nation's economic efficiency and growth;

2. Expand the possibilities for upward mobility for students from the lower socioeconomic classes;

3. Induce pupils to stay in school for longer periods of time; and

4. Teach more efficiently the moral values previously addressed by manual education.[5]

Although the vocational movement had wide support, it was sometimes criticized for restricting students' exposure to a wide range of occupations, thereby limiting the social mobility of students from lower-income families. Some critics charged vocationalism with teaching the children of workers the "virtues" of obedience, discipline, and submission, thereby maintaining class distinctions. The contention that vocationalism destroys the egalitarian nature of American public education continues to be a concern of many of those who take an interest in vocational education.

A major triumph of the vocational movement occurred in 1917 with the passage of the Smith-Hughes Act, which represents the result of intense pressure on the federal government to back the vocational movement with money. Federal funds were provided to help train a highly skilled labor force for American industry--satisfied workers who would, it was thought, have an increased appreciation for and understanding of their contribution to society.[6]

Following the Smith-Hughes Act, few changes occurred in the vocational education movement. Periodically, advocates of vocational education have reiterated their appeals for a process which they believe will help to make education more democratic and attractive, especially to students from the lower socioeconomic class. The issues raised throughout the history of the vocational movement continue to be raised today.

The Current Situation

The continuing concern and debate about vocational education occur largely as a result of the artificial distinction between school and work which has been created by the social and economic influences which have shaped public education in this century.

Legislation (e.g., child labor laws, compulsory education, minimum wage laws, and mandatory attendance regulations), organized labor's opposition to the displacement of adults by youths, and a decreased need for unskilled labor have served to prolong the period of time that young people remain in school, and have increased the need for specialized training in order to find jobs. A paradoxical situation has resulted. Young people are encouraged to stay in school and out of the full-time labor force as long as possible in order to increase their opportunities for finding employment, but upon being graduated from high school, find employment prospects quite poor. The unemployment rate among sixteen to twenty-four year olds continues to be significantly higher than that for any other segment of the population.[7] Part of the current interest in work experience programs stems from the belief that these programs might provide an easier transition from the school to the work force.

Definitions

The American Vocational Association (AVA), defines the various types of work experience programs to include work experience, work study, and cooperative education. Of these terms, work experience is the most generic. Although 'work experience,' 'work study' and 'cooperative education' are used interchangeably in some general discussions, for the purposes of this report 'work experience' is defined as "employment undertaken as part of the requirements of a school course and designed to provide planned experiences, in the chosen occupation, which are supervised by a teacher-coordinator and the employer."[8] School supervision and school credit for jobs undertaken are the critical criteria.

Work experience programs as defined in this study have the following characteristics:

1. They are school supervised; i.e., they operate under the auspices of a school-based coordinator whose responsibilities include visits to employed youths and employers to determine whether or not the objectives of the work experience program are being implemented.

2. They offer academic credit to participating students.

3. They usually involve released time during the regular school day to students who participate.

Cooperative education programs, a type of work experience program, are geared to vocational students. Cooperative education students are usually placed in jobs directly related to the student's field of study.

Work study programs serve students who may or may not be enrolled in the school's vocational curriculum. Participants are frequently placed in jobs which are not directly related to their fields of study, and the programs are often designed mainly to deter dropouts.

Objectives of Work Experience Programs

Work experience programs of one kind or another have existed for many years, but have not been widespread. Within the last decade, however, legislators, educators, and administrators have expressed renewed interest in such programs. Depending on the type of program, school-based work experience programs include among their objectives (1) providing training in a specific skill, (2) providing dropout-prone youths with an incentive to remain in school until they graduate, (3) easing the transition from school to full-time jobs, and (4) providing opportunities for career exploration.

Educators, administrators, and school students have almost unanimously called for expansion of these programs despite the fact that little is known about the impact of various types of work experience. Although the evidence is divided, many researchers have found that random work experience does not necessarily result in a better understanding of the world of work. A partial explanation for this may be that in work experience programs which are designed primarily to prevent school dropouts, students often work at jobs in which they have little interest and which give them little opportunity to exercise their intelligence or skills.[9]

The conventional wisdom on work experience states that (a) experiential learning situations must be perceived by the learner as involving meaningful adult work; (b) students must have clear ideas of what they need to learn before they can be achievement motivated; (c) students must perceive the required learning tasks as things they can do successfully and which provide satisfaction (and when students do not successfully complete a particular task, they need feedback and encouragement); and (d) students must be provided with the opportunity to practice what they learn.

The Major Issues

The supporters of work experience programs and those who question the value of such programs are divided on three basic issues: (1) the incompatibility between current methods of selecting students for participation in the various work experience programs and the objectives of those programs, (2) the incompatibility between stages of the career development process and the time and grade sequencing of high school programs, and (3) the degree of specialization that is desirable in work experience programs.

Means of Selection of Student Participants

Of the various types of work experience programs, cooperative education is the most selective. It has been said that cooperative programs are more likely to be restricted to students with conforming middle class behaviors than are other types of work experience programs; are less effective in reducing student absenteeism, and, because they place students in more responsible jobs, are more likely to interfere with a student's other activities.[10]

To gain admittance to the vocational curriculum, and in particular to some of the more popular specializations within the vocational curriculum, students have to meet restrictive minimum standards. In other words, at least in the urban schools, one would expect co-op students to be more academically skilled than their work study counterparts, since most urban work study programs are designed to deter potential dropouts. Work study programs in suburban and rural areas usually have less specific objectives and tend to serve a more heterogeneous group of students.

Although federal legislation which provided funds for cooperative work experience programs emphasized the special needs of disadvantaged groups, the methods and criteria for the section of students for some cooperative programs indicate that a selection factor based on the student's potential success in the program and on the job is often applied,[11] resulting in the exclusion of the very students who are most in need of the skills and experiences these programs attempt to provide.

Some educators are concerned with school "image" when selecting students for a program. The following statement refers to cooperative distributive education programs, but it expresses what seems to be a widely held point of view regarding other work experience programs as well.

> ...We are finding that only the qualified students are being permitted to enter the cooperative programs and to take their supervised on-the-job experience in approved training stations. There is an understandable cautiousness being exhibited in many communities in permitting students with marginal abilities, interests and aptitudes to represent the school in the business community.[12]

Although such cautious attitudes may be understandable, they conflict with the federal government's explicit interest in providing special education programs designed to assist students whose abilities are "marginal." One evaluator writes, "Indeed, the general flavor of the recent literature is that in too many cases, students for whom vocational education programs are designed and/or best suited to serve, are eliminated in the selection process...."[13] He adds that "students are excluded from CWE [cooperative work experience] by the very criteria that should be used to admit them to these programs."[14]

The fact that cooperative education programs generally have a high rate of job-related placements may indicate that participation in such programs, from the employer's point of view, is an efficient means of screening potential applicants for full- or part-time jobs. In fact, school officials often point out that the opportunity to screen potential full-time employees is one of the major selling points used by school officials who seek to interest employers in participating in the program.

Staging

Educators also disagree about staging--the compatibility between stages of the career development process and the time and grade sequencing of high school programs. Particularly when the object of the work experience program is training in a specific skill, some argue that the early choice of a vocational specialty may constrict later options and decrease the individual's chances for upward occupational mobility. Many individuals have indicated concern about the social segregation of students that results from curriculum segregation, especially when students attend separate specialized vocational institutions.[15] Participation in some work experience programs is often criticized for the same reasons.

Project Talent found that only 31.4 percent of male high school students continued to hold the same career plans one year after high school as they did in the twelfth grade. Because so many young people changed career plans shortly after high school graduation, Project Talent concluded that "students have been faced with choices that they are not adequately prepared to make."[16]

Other critics suggest that specialized training is competitive with and perhaps detrimental to the achievement of more general, three-R educational objectives. By trying to provide the young people it serves with both an education and skilled training for the labor force, it is alleged that vocational education programs do not provide either basic education or employability.[17] After examining the relationship between course work and students' achievement scores, Project Talent reported,

> At the present time many poor students who are just barely able to read are placed in vocational training courses that give little emphasis to reading and basic skills. It is probable that a large proportion of these students do not end up with skills that make them attractive to employers.... It is possible that placing such students in a general curriculum and raising their basic literacy slightly might do more to maximize their employability....[18]

In contrast, proponents of vocational education and work experience programs argue that properly designed work experience programs can contribute positively to academic goals by making the final years of schooling more bearable for nonacademically oriented youth. An unpublished report submitted to the Department of Health, Education, and Welfare by the National Panel on High Schools and Adolescent

Education states that "cooperative education is a means for alleviating the detachment and isolation of the youth peer culture by getting them involved at an earlier age in a realistic work situation with a wider group of adults."[19] Moreover, proponents of vocational education point out that specialized skill development is necessary for youth. They insist that high unemployment and other labor market problems of youth result from low secondary level vocational enrollments.[20]

Specificity of Training

The third major issue around which the current debate revolves is the degree of specificity of training that is desirable in work experience programs. According to a study by the Systems Development Corporation of school-supervised work experience programs, specific occupational preparation was the primary purpose of most work experience education programs, although the report questioned whether this goal was achieved.[21]

Studies that have compared the graduates of the academic and general curricula with graduates of the vocational curriculum have difficulty in establishing vocational education as the cause of observed differences in performance.[22] Since students in vocational education in general come from less favored socioeconomic backgrounds and score lower on standardized tests than students in the academic curriculum, it is difficult to trace the effects of variations in student attitudes, aspirations, motivation, and other characteristics to differences between high school curricula. With regard to earnings over their working lives, the assumed advantage of high school vocational graduates over other high school graduates has not yet been firmly established.[23] However, Herrnstadt and Horowitz report that "tentatively there seems to be some relative advantage to cooperative work study, at least as measured in terms of wage gains and occupational stability, over a five-and-one-half year period, beginning with mid-1966."[24]

Since cooperative programs tend to have specific occupational skills training as a program objective, the fact that these programs may impart some occupational advantage to their graduates lends support to the position taken by most proponents of vocational education, who suggest that a major cause of the high youth unemployment rate is the lack of specific marketable skills among most students when they leave school. In order to assess the impact of programs accurately, however, explicit information is needed. The following sections explain how cost-effectiveness analysis can provide the explicit information that is necessary to assist educators in maing informed decisions about many aspects of work experience programs.

What Is Cost-Effectiveness Analysis?

The purpose of cost-effectiveness analysis is to introduce into the public sector of the economy the equivalent of the market constraints in the private sector. In the private sector a business firm has a useful barometer by which it can assess its performance during a given year, namely, the profit and loss statement. Put simply, a profit and loss statement sets forth the revenues received from the sales of the products of the firm and the costs incurred in producing these products. The difference between the two is profits (or losses). Thus, the firm can analyze its revenues and costs and attempt to maximize the former and minimize the latter. One way of reducing costs or increasing revenues is to change the process of production so that profits can increase.

How can this approach be adapted to vocational education? Educational decision makers must seek proxies or surrogates for revenues by which the effectiveness of the educational process can be judged. These "revenues" can be assessed according to how well they fulfill performance goals or impact goals. There is no problem of costs in the public sector which does not exist in the private sector, and the production process in the private sector can be seen as the equivalent of the educational process in vocational education.

The basic challenge to an analyst is to determine the proxies or surrogates for output in the public sector and attempt, if possible, to translate these output (performance or impact) measures into dollar terms. Certain measures--such as the income enjoyed by one group of students as opposed to another--can be handled without great difficulty. Other measures of output can be translated into dollar terms indirectly or by comparing the results--in nonmonetary terms--with the costs involved. These procedures are not simple, but reasonable estimates can be made given adequate data.

The theoretical concepts pertaining to costs and benefits which underlie this approach are outlined below in order to lay the groundwork for a study of the cost-effectiveness of work experience programs in secondary schools, which may better enable society to allocate its limited resources for facilitating the achievement of its educational goals.

Evaluation of Performance

Under a free enterprise economy, most private wants are satisfied through the workings of the market system. Under this system it is assumed that, as a result of consumer choice, goods and services will be produced to satisfy private wants and that the limited resources of the economy will be allocated through the operations of the market in a manner which will yield the greatest output with a given amount of resources or that a given output will be obtained with the least amount of resources.

Certain needs and wants, however, are not (or cannot be) satisfied by the private sector. Social wants are those which are satisfied by services that are consumed in equal amounts by all members of society. Some people can benefit from these services even if they do not pay for them--in fact, there is no reason to think that such persons would make voluntary payments for governmental services of this type, which might include expenditures for flood control, defense, sanitation, etc.

A third group of wants which could be fulfilled by the private sector, but which is frequently handled by the public sector (largely because society considers the fulfillment of these wants especially desirable), may be referred to as "merit" wants. Included in this category are such items as low-cost housing and "free" education. In these instances, certain social benefits are thought to derive from the provision of these commodities which justify society's assumption of responsibility to satisfy these wants.

This report is concerned less with society's objectives in establishing work experience education than with whether such programs are enacted efficiently and in consistence with stated objectives. (Again, efficiency means the maximizing of a given goal at a given cost or the attainment of a given objective at the lowest possible cost.)

In the private sector of the economy, evaluations of performance usually are made in the market place. The inefficient firm may be forced out of business. The firm that does not produce goods and services which satisfy the needs of consumers may not survive. But what tests for efficiency and survival do we have when the government provides the goods and services, as in the case of work experience vocational education?

The only alternative to marketplace tests of the efficiency of production or the quality of the product is cost-effectiveness analysis. Despite the fact that this method of analysis is difficult to develop and that adequate data are difficult to obtain, it is the only method at hand which can accomplish the careful analyses needed to evaluate government-funded programs.

Some educators tend to talk simply in terms of the "needs" of educational systems. Their position is simple: governmental agencies should raise whatever funds are necessary to meet these "needs." Others assert that only so much can be done with the fixed sums of money available for educators to spend on education. Education should not, however, be assessed in terms of costs or needs alone. No cost can be justified without reference to payoff or results, and the satisfaction of any need cannot be justified without reference to cost.

The impact of and justification for work experience programs must therefore be related to costs, and the costs of work experience must be related to their impact or benefits in order to determine whether benefits are proportionate to costs or vice versa. If private vocational schools survive, it is reasonable to assume that these schools operate at a profit and that the consumers of such education are willing to pay the price of tuition because they find that it pays off. We can also assume that the profit motive serves as a sufficient stimulus to the owner of the private vocational school to keep costs as low as possible--otherwise the school would not survive.

But what controls do we have over public education? What induces public educators to keep costs down? What evidence is there that public education is being provided efficiently and that its objectives are being achieved?

These are legitimate questions during a period when there are many demands for the provision of social and merit goods by the government. Within education, the many demands for different forms of education require that decisions be made as to how resources should be allocated among competing educational programs. Cost-effectiveness analysis provides a basis on which these decisions can be made (see Chapters 3 and 5 for a more detailed description of the analytical procedure).

Objectives. It should be stressed that cost-effectiveness analysis is basically a "way of thinking." It tends, first, to force administrators to state objectives clearly. This is not easy to do, as the prevalence of broadly stated objectives which do not reflect actual purposes attests. It is not enough, for example, to state that the schools attempt to educate the "whole man." Nor can it simply be stated that vocational education is designed to place a student in a job. Does the job relate to the student's training? Is it a job that leads to promotion? Is it a satisfying job? How does the job affect the student's later participation in the labor market?

Costs. Second, cost-effectiveness analysis tends to force administrators to concentrate on the costs associated with the achievement of objectives. In education, as in business, inputs, processes, products, and impact are interrelated and must not be considered separately.

Alternative Methods. Third, cost-effectiveness analysis forces administrators to think of alternative ways of achieving the same objectives. Just as the pressures of competition tend to force private enterprise to seek other and better means of producing goods or services, an examination of the efficiency of the educational process can expose specific strengths and limitations of programs that can help educators and administrators to seek other and better means for the education of youth. In this way, cost-effectiveness analysis can force change and innovation in education. In fact, failure to evaluate educational curricula leads to stagnation. It is only through constant evaluation that innovation can be achieved.

Misconceptions About Cost-Effectiveness Analysis

One of the most serious misconceptions about cost-effectiveness analysis is that it is merely a subterfuge for seeking to conduct education on a "least-cost" basis without regard for the fulfillment of all educational objectives. It must be remembered that efficiency means *the achievement of a given objective with the least cost or the maximization of a given objective with a given cost*. The cost-effectiveness approach does not stress minimizing costs if valid educational objectives will suffer.

A second misconception is that benefit is measured only in dollars--a form of "crass materialism." Cost-effectiveness analysis recognizes that nonmonetary benefits *must* be taken into account. Such nonmonetary benefits may include changes in voting behavior, job satisfaction, cultural values, dropout prevention, etc. It is essential, however, that the community should determine whether (and how much) it wants to spend for explicitly stated objectives, economic or otherwise.

A third criticism that is often advanced against cost-benefit analysis is that some things are just not quantifiable. Presumably, this means that there is no way in which one can determine whether or not a given noneconomic objective has been attained. Cost benefit analysis stresses simply that an attempt must be made to evaluate all objectives in order to determine whether their apparent value is fulfilled in practice. Although certain objectives may be difficult to quantify, every effort is made to develop "inferential" (or proxy) indexes. For example, the extent of "interest" of students in a curriculum might be inferred from an index of absenteeism.

Finally, it is sometimes argued that cost-effectiveness analysis ignores political considerations or other constraints on educational decision makers. Although the analyst ignores the political aspects of a program in favor of objective criteria of evaluation, the decision maker should not necessarily ignore "politics." Cost-effectiveness analysis does tend, however, to reveal the cost of political decisions and may help to minimize the role of politics in the decision-making process.

Other Constraints. It is recognized, of course, that administrators face other constraints on their attempts to realize educational goals. When these hindrances are explicitly identified, however, strategies can be developed for overcoming them. Some of these constraints are listed below.

1. Technological Constraints involve limitations in the state of knowledge of the appropriate combinations of student characteristics, teacher characteristics, educational processes, and educational facilities required to achieve performance goals in work experience education.

2. Policy Constraints are often imposed on subordinate decision makers by superior decision makers. In work experience programs, for example, decisions about the number of students who are to be enrolled in a curriculum are subject to constraint. In such instances administrators cannot consider alternative approaches.

3. Political Constraints are those imposed on educational decision makers by legislation that establishes certain conditions under which work experience programs must be conducted.

4. Organizational, Institutional, and Legal Constraints include those which reflect differences in the power and responsibilities of various institutional entities. For example, the federal or state governments might establish certain conditions which must be fulfilled in order for schools to receive funds for work experience programs.

5. Resource Constraints limit the finances or facilities available for work experience programs.

6. Target Constraints set forth specific objectives which must be met by work experience programs in a given year, the costs of which may be too high or too low.

7. Attitudinal Constraints reflect people's unwillingness or inability to consider alternatives with which they are unfamiliar.

Although some or all of these constraints affect the decision maker's freedom to interpret and use the information provided by reports such as this one, it is hoped that this and other studies can help to overcome such barriers by providing explicit information.

The Present Study

The results of analyses of the data collected in the present study suggest that students in school-supervised jobs (either cooperative or work study, but especially cooperative) have benefited more in terms of career development and planning, satisfaction in school, and dropout prevention than other students. They do not appear to bear any appreciable individual costs as a result of their participation in such programs. In addition, although co-op students do not obtain higher-paying post-graduation jobs than other students, they acquire jobs more quickly after being graduated from high school, and appear to have more "marketable" skills.

This study found that work experience programs--broadly defined to include all school-supervised jobs--cost more per student and did not yield higher wages to their participants during the first two years after graduation. Thus, although from a strict human capital perspective the added investment that society must make to support work experience education does not appear to be justified, tangible personal and social benefits do appear to result from participation in work experience education programs.

Many economists now believe that there are two labor markets--a primary market in which workers hold stable jobs with benefits and opportunities for advancement, and a secondary market in which workers hold "marginal" jobs. It appears that graduates of work experience programs, whether they initially earn higher wages or not, receive more of the socialization and training which have been described in the literature as necessary for obtaining preferred primary-type jobs. The present study did not, however, follow the labor market experiences of graduates for a long enough period in order to confirm or deny this hypothesis. Nor could it quantify the monetary benefits which may accrue to individuals, communities, or society at large as a result of, for example, the dropout prevention function of work experience education. These and other reservations noted in the text should illustrate the importance of considering both monetary and nonmonetary factors when assessing work experience programs.

Are the benefits that have been identified sufficient to justify the extra costs of work experience programs? This is a question which the study cannot answer, because it involves a weighting of the value of the respective benefits that is not appropriate to this project, or any research project. The answers to such questions must come first from educators, and ultimately from society in general, through its elected representatives. This study presents the kinds of evidence to be considered whenever such decisions are made.

Summary

Perhaps the major point of disagreement between the proponents of work experience programs in secondary schools and the critics of such programs lies in whether or not vocational education programs in practice come close to fulfilling the expressed ideals of vocational education. Ideally, vocational education programs should contribute positively to both academic and career goals. Similarly, the optimum timing of curricular choice is often directly related to the breadth and depth of occupational information and the amount of competent guidance available to the young person making the career choice. Thus, in those schools which more closely approach the ideals of vocational education and guidance, the students may be adequately prepared to make career choices. In other schools they are not.

A similar case may be made with regard to the optimal amount of specialization in the vocational curriculum. Vocational education programs vary greatly in terms of specialization from place to place and even within large cities.[25] Whether or not the specialization helps students to find employment at suitable skill levels depends on the careful matching of employment opportunities within a given area and the vocational school offerings. It has been argued that "enrollment in many high school vocational courses is so far in excess of the average number of job openings that a regular oversupply would result if many enrollees did not drop out before graduation or take jobs outside their fields of training."[26] Reubens notes, however, that if the extra cost per student enrolled in vocational education as compared with other programs is to be justified, the vocational graduate should qualify for a higher-level entry job, earn more, advance more rapidly, have fewer and/or shorter periods of unemployment, and have greater job satisfaction than the matched nonvocational graduate.[27]

The present cost-effectiveness study explores the claims made for work experience programs and provides evidence that at least some of the benefits that its proponents assert do in fact occur as a result of students' participation in such programs. The responses of current and former students to structured questionnaires indicate that students in work experience programs have somewhat more positive school and employment experiences than nonwork experience vocational students, as is demonstrated in the following chapters. They do not appear, however, to earn more money in post-high school jobs, at least not in the first two years after graduation.

FOOTNOTES

[1] Marvin Lazerson and W. Norton Grubb, eds. *American Education and Vocationalism*, (New York, Teachers College Press, 1974).

[2] Elizabeth L. and Michael Useem, *The Educational Establishment*, (Englewood Cliffs, New Jersey, Prentice-Hall, 1974), p. 17.

[3] Lazerson and Grubb, *American Education*, p. 22.

[4] Useem, *Education Establishment*, p. 24.

[5] Lazerson and Grubb, *American Education*, p. 26.

[6] *Ibid*., p. 85.

[7] Janice Neipert Hedges, "Youth Unemployment in the 1974-75 Recession," *Monthly Labor Review* (January 1976), pp. 49-56.

[8] American Vocational Association, Committee on Publications, *Definitions of Terms in Vocational, Technical and Practical Arts Education* (Washington, D.C.: American Vocational Association, Inc.), p. 23.

[9] Steven Frankel *et al*., *Case Studies of Fifty Representative Work Education Programs*, Systems Development Corporation, Santa Monica, 1973.

[10] Steven M. Frankel, *Executive Summary: An Assessment of School-Supervised Work Education Programs*, TM-5195/033/00 (Systems Development Corporation, 14 September 1973), p. 4.

[11] Ralph E. Mason and Peter G. Haines, *Cooperative Occupational Education* (Danville, Illinois: Interstate Printers and Publishers, 1965). Cited in J. Ullery, *A Comparative Analysis of Selected Student Characteristics and Vocational Cooperative Programs*, Ph.D. Thesis (Urbana-Champaign: University of Illinois, 1971), pp. 141-142.

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[13] *Ibid.*, p. 145.

[14] *Ibid.*, p. 143.

[15] J. B. Conant, *The Comprehensive High School: A Second Report to Interested Citizens.* (New York: McGraw-Hill Book Company, 1967), pp. 4-5. R. N. Evans and J. D. Galloway, "Verbal Ability and Socioeconomic Status of 11th and 12th Grade College Preparatory, General and Vocational Students," *Journal of Human Resources*, Vol. 8, No. 1 (1973), p. 34. J. D. Grambs, "The Lost Learning" in J. J. DeBoer, W. V. Kaulfers and L. E. Metcalf (eds.). *Secondary Education* (Boston: Allyn and Bacon, Inc., 1966), pp. 88-92. Cited in John T. Grasso, *The Contributions of Vocational Education, Training and Work Experience to The Early Career Achievements of Young Men*, Center for Human Resource Research, The Ohio State University, July 1975, p. 13.

[16] J. C. Flanagan and W. W. Cooley, *Project Talent: One-Year Follow-up Studies* (Cooperative Research Project No. 23333), Pittsburgh, Pa., Project Talent Office, University of Pittsburgh, 1966, pp. 177, 183. See also J. C. Flanagan and W. W. Colley, *Project Talent: Identification Development and Utilization of Human Talents: Report of the Eleventh Grade Follow-up Study* (Cooperative Research Project No. 635). Pittsburgh, Pa.: Project Talent Office, University of Pittsburgh, 1965, pp. 1-6. Cited in Grasso, *op. cit.*, p. 18.

[17] Grant Venn, *Man, Education, and Manpower* (Washington, D.C.: The American Association of School Administrators, 1970, pp. 60-61.

[18] J. C. Flanagan, J. T. Dailey, M. F. Shaycoft, D. B. Orr and I. Goldberg. *Project Talent: A Survey of Follow-up of Educational Plans and Decisions in Relation to Aptitude Patterns: Study of The American High School*, Cooperative Research Project No. 226, (Pittsburgh, Pa.: Project Talent Office, University of Pittsburgh, 1962), pp. 4-22.

[19] Gordon I. Swanson, *The Preparation of Teachers for Vocational Education*, Project Baseline Supplemental Report (Flagstaff, Arisona: Northern Arizona University, 1974), p. 5. Cited in Project Baseline, *A Report of the Nation on Vocational Education*, 1975 (Flagstaff, Arizona: Northern Arizona University, 1975), pp. 78-79.

[20] S. P. Marland, Jr., Career Education Now. In G. F. Law (Ed.), *Contemporary Concepts in Vocational Education* (first Yearbook of the American Vocational Association, Washington, D.C.: American Vocational

Association, 1971). See also S. P. Marland, Jr., Education for the Real World (An address at the Jefferson County Chamber of Commerce at Harpers Ferry, West Virginia, May 26, 1971). Cited in Grasso, op. cit., p. 23.

[21] Alan J. Cohen and Steven M. Frankel, Data Analysis Report: An Assessment of School-Supervised Work Education Programs, TM-5195/001/001 p. II - 1.

[22] Beatrice G. Reubens, "Vocational Education for All in High School" in James O'Toole, (ed.), Work and the Quality of Life: Resource Papers for Work in America (Cambridge, Mass: The M.I.T. Press, 1974), p. 303. See also Grasso, op. cit., p. 83 who found no "clear superiority" of any curriculum in terms of the future labor market performance of graduates who did not go on to college.

[23] Reubens, loc cit.

[24] Irwin Herrnstadt and Morris Horowitz, Transition from School to Work: The Contribution of Cooperative Education Programs at the Secondary School Level, Contract 82-18-72-24, U.S. Department of Labor, Manpower Administration. This study attempts to determine (1) the degree to which students from cooperative vocational education programs may be better prepared than other youth for finding a first full-time job and the extent to which they obtain better quality jobs in the work they do find; and (2) the extent to which the working experience of graduates of cooperative vocational programs differs from that of other students. Cited in Reubens, op. cit., p. 311.

[25] Reubens, op. cit., p. 304.

[26] Gerald G. Somers and J. Kenneth Little, eds. Vocational Education: Today and Tomorrow (Madison: University of Wisconsin), Center for Studies in Vocational and Technical Education, 1971), pp. 41-47. National Planning Association, Center for Priority Analysis, Policy Issues and Analytical Problems in Evaluating Vocational Education (Washington, D.C.: U.S. Office of Education, 1972), Chapter 3, pp. 4-11. Cited in Reubens, op. cit., p. 305, note 25.

[27] Reubens, op. cit., p. 306.

PART II

METHODOLOGY

CHAPTER 2

CONDUCTING THE STUDY

Introduction

Work experience programs in secondary schools are examined in this study in order to determine the costs and benefits associated with them. Two types of programs are included: cooperative programs geared to vocational students who are placed in jobs related to their fields of study; and work study programs (often designed primarily to deter dropouts) that place students in jobs which may or may not be related to their fields of study. Data on students in these programs are compared with data on students with nonschool-supervised jobs and students with no jobs. Characteristics and experiences of current and former students are compared.

Data were obtained through the cooperation of thirty-three high schools in fifteen school districts in the eastern half of the United States. Usable questionnaires were collected from 2,854 students who were enrolled in these programs in April and May 1975, and mail questionnaires were obtained from 2,245 former students from the classes of 1972, 1973, and 1974. Information on the costs of work experience and vocational programs was obtained from school records.

This chapter discusses how the steps in selecting the sample and obtaining the data were carried out. It is divided into four sections:

1. A summary of the content of the instruments that were used.

2. A description of the method of selecting the sample.

3. A discussion of response rates.

4. An outline of the methods used to classify vocational, cooperative (co-op), and work study students. Data supplied by the schools and students that relate to these classifications are presented and compared.

The Instruments

Three basic instruments were used to collect data from students: a school record card, a self-administered questionnaire for the current students, and a mail questionnaire for the former students. A separate questionnaire on cost data was designed for completion by school officials. These instruments are reproduced in Appendix A.

The student instruments were designed to obtain information in eight categories:

1. Background data on the students (race, IQ, grade point average) from school files.
2. Family background (education and occupation of parents, family possessions, educational resources in the home).
3. The students' experiences in and attitudes about school.
4. Influences on the students' choicesof courses of study.
5. Employment experiences, including the effects of holding a job while in school.
6. Extent of the students' knowledge about occupations.
7. Students' feelings about themselves.
8. Education or training after high school.
9. Future plans and expectations.

Questions were developed or adapted from existing instruments.

The questionnaire for current students was designed to be administered in a group setting and to take approximately 45 minutes to complete. As a consequence, it was more comprehensive than the mail questionnaire that was sent to former students, which covered some of the same areas as the current students' questionnaire, but in abbreviated form. The mail questionnaire stressed former students' employment experiences after high school.

School personnel answered questionnaires that covered current costs of vocational programs, including: number of teachers and coordinators, salaries and fringe benefits of teachers and coordinators, fringe benefits as a percentage of salaries, travel costs related to coordination, consumable supplies, and repair costs. The cost questionnaire also collected information on enrollment and hours of class attendance. Whenever possible, the schools were asked to supply these data separately for various vocational programs (distributive, office, health, trade and industrial, etc.).

Finally, a survey of a relatively small number of employers of cooperative students was made, the results of which are reported in Chapter 8. Questionnaires were mailed to 250 firms, 68 of which returned completed questionnaires (a 27 percent response). The sample was about equally weighted among urban, suburban, and rural areas. Questions were asked about the quality of co-op workers, their duties, hours, rates of pay, and so on. The questionnaire is reproduced in Appendix A-5.

Sampling

The total population from which the sample units were selected was arbitrarily limited to the eastern half of the United States, with the Mississippi River as the dividing line. It was further limited to the fifty largest standard metropolitan statistical areas (SMSAs) and their surrounding rural counties. The sampling plan identified the school district that served the central city of each of these areas as the primary sampling unit. The fifty largest SMSAs were grouped by federal region, and one district in each region was selected at random for inclusion in the sample. An additional district was selected in the largest region. Once the cooperation of the districts serving the central cities was obtained, suburban and rural school systems from the same geographic areas were also selected at random. Suburban systems were defined as any of those within the county or counties comprising the SMSA, excluding the central city system. The rural systems were defined as those located in nonmetropolitan counties which were contiguous to the SMSAs.

Of the six initially selected central city systems, four agreed to participate in the study and two declined. Substitutes for these two were selected at random within their regions. Suburban and rural districts were requested to participate in the study following an initial telephone call to determine if the district had a supervised work experience program. If it did, a letter that asked the school to participate was sent to the appropriate official. Nine of the fifteen districts that were contacted agreed to cooperate.

A total of fifteen districts participated in the study. The original design called for eighteen, but in two areas, geographic conditions limited the sample to county wide systems that provided both suburban and rural schools. A total of thirty-three schools comprised the sample.

When a system agreed to participate, it was visited and procedures for selecting the samples of current and former students were developed with school representatives. The number of students selected for inclusion in the sample was dependent on the total number of students enrolled in work experience programs, the ease of access to files, and the cooperation of school representatives. In the smaller schools, all of the students in work experience programs were usually included. In the larger systems, samples of 200 current and 200 former students were requested and usually provided.

The schools were asked to match students in work experience programs to students in the same vocational programs who did not have school-supervised jobs according to sex, race, and IQ scores (plus or minus five points). I. a match could not be found for all three characteristics, the schools were instructed to drop first the IQ, and then the race variables. In one system, the matching procedure was not carried out because of the large number of students selected. Because this system wanted a substantial sample for internal use, the questionnaires were administered to selected classes which included large numbers of students in school-supervised jobs.

Response Rates

Current Students

Before collecting data from the selected current students, their parents' consent was obtained. The guidelines for the protection of human subjects require that before youngsters under eighteen years of age take part in any research, their parents must be informed of the nature of the research, the way in which their children will be involved, and their right not to participate.

To obtain the parents' consent, the selected students were asked to take letters home from the principals of their schools which explained the nature of the study and requested that the parents permit their youngsters to participate. The students then returned the signed consent forms to the individuals who coordinated the data collection in each school.

The schools were asked to maintain records of the number of students who were initially selected for inclusion in the sample and the number who returned consent forms and completed the questionnaires. Twenty-four of the thirty-three participating schools maintained such records. The completion rates varied widely, from a low of 18 percent to a high of 96 percent. The overall rate for the twenty-four reporting schools was 73 percent. The determining factor did not appear to be the size of the school or the composition of the sample but the conscientiousness of the coordinators. Those who took their responsibilities seriously and contacted students who did not return the parental consent forms produced the highest completion rates.

Former Students

All of the former students who were selected to participate in the study were eighteen years of age or older. For these students it was not necessary to obtain parental consent. Before the schools could release any information from their files, however, it was necessary to obtain the students' consent. A consent form was included in a section of the mail questionnaire which was sent to the former students. The schools provided the names and addresses of the students but withheld grade point averages and IQ scores until the students returned signed questionnaires which allowed the schools to release the information.

An original sample of 5,254 former students was sent mail questionnaires in mid-July 1975. Three weeks after the first mailing, those who had not responded (minus the undeliverables) were listed and a 30 percent sample was assigned to interviewers who contacted the former students by telephone or in person. The remaining 70 percent were sent a second mailing. Six weeks later, in the last week of September 1975, those from whom no response had been obtained were sent a third mailing. The third mailing included a dime incentive. The response rates produced by these contacts are shown in Table 2-1.

TABLE 2-1

Number of Former Students Selected for Study and Response Rates to Contacts

Contact	Numbers			Response Rates As Percent of		
	Mailed-Assigned	Undeliv-erable	Acutal Response	Number mailed-assigned	Total Original Sample	Original minus Undeliverable
1st Mailing	5254	615	901	17.1	17.1	20.4
2nd Mailing[a]	2716	163	354	13.1	6.7	8.0
Interviewer	1176	NA	357	30.4	6.8	8.1
3rd Mailing	3069	62	641	20.9	12.2	14.5
Total		840	2253		42.9	51.0

[a] Thirty percent of nonrespondents to first mailing were assigned to interviewers to be contacted by telephone or in person.

NA = Not applicable.

As would be expected, the most responses per contact were gained through interviews. However, the dime incentive also proved to be effective. It yielded the largest proportional response of any of the mailings from a sample that had been contacted twice before.

But even after the three contacts, approximately half of the original sample did not respond. The question that arises is, how representative are the respondents of the total sample? It seemed likely that the questionnaires that were completed by the interviewers and those in response to the third mailing would be more representative of the nonrespondents than those from earlier mailings. To test this assumption, the questionnaires were grouped by the mailings or interviewer contact that yielded them and compared. Significant differences emerged on many of the variables. Most of these, however, were related to the sex difference in the responses--females were more likely to have responded to the early (especially the first) mailings. Table 2-2 presents these results. Since in almost all of the analyses the results for males and females are presented separately, no weighting was made to adjust for the heavier female response to the early mailing. Tables 2-3 and 2-4 show the total number of usable responses received from each of the participating school districts classified by sex and work status while in school, and Tables 2-5 through 2-8 present basic demographic information on the characteristics of the respondents.

TABLE 2-2

Questionnaires Returned by Contact that Yielded Them and Sex of Respondent

Sex of Respondent	Contact that Yielded Response			
	Mailings			Interviewer
	First	Second	Third	
	%	%	%	%
Male	36	40	45	45
Female	64	60	55	55
Base Number	901	353	640	351

Sex differences across contacts significant chi square = 15.31, $p < .002$

TABLE 2-3

Number of Current Students that Returned
Usable Questionnaires, by School District, Sex, and Work Status

Participating School Districts	Males				Females			
	Co-op	Work Study	Part Time	No Job	Co-op	Work Study	Part Time	No Job
Northeastern Area								
Urban	2	4	8	2	11	14	20	7
Suburban	8	14	11	7	10	13	18	5
Rural	1	5	14	5	1	2	16	5
Midwestern Area								
Urban	15	15	32	16	41	13	38	27
Suburban	3	1	4	3	5	2	5	7
Southeastern Area								
Urban	7	2	25	9	14	0	21	14
Suburban	30	4	33	13	16	3	20	11
Southern Area								
Urban	36	22	79	37	105	24	68	62
Suburban	41	12	80	22	103	14	124	49
Rural	10	6	45	23	36	6	38	49
South Atlantic Area								
Urban	20	6	10	7	93	18	55	48
Suburban	67	4	50	42	84	5	60	37
Rural	23	3	23	6	37	2	25	24
Mid Atlantic Area								
Urban	13	12	38	36	19	4	53	50
Suburban	0	30	20	20	0	9	5	6
Rural	7	3	4	3	12	1	8	7
Total	283	143	476	251	587	130	574	408

TABLE 2-4

Number of Former Students that Returned Usable Questionnaires by School District, Sex, and Work Status

Participating School Districts	Males			Females		
	Co-op	Work Study	Comparison	Co-op	Work Study	Comparison
Northeastern Area						
Suburban	4	12	22	6	15	16
Rural	4	3	10	20	7	19
Midwestern Area						
Urban	29	19	7	59	16	17
Suburban	3	9	6	14	2	12
Rural	12	19	19	16	16	16
Southeastern Area						
Urban	8	4	8	11	6	11
Suburban	16	8	18	20	3	13
Southern Area						
Urban	44	14	49	82	7	21
Suburban	58	23	37	115	16	77
Rural	19	16	27	59	16	66
South Atlantic Area						
Urban	4	4	16	24	1	20
Suburban	24	15	39	68	15	72
Rural	16	3	14	35	2	22
Mid Atlantic Area						
Urban	85	13	71	103	14	111
Suburban	2	6	16	0	0	23
Rural	19	9	28	32	3	15
Total	347	177	387	664	139	531

TABLE 2-5

Sex and Race of Current Students by Work Status

Sex, Race of Respondents	Co-op	Work Study	Part-Time	No Job	Total
	%	%	%	%	%
Male	33	52	45	38	40
Female	67	48	55	62	60
Base Number	870	273	1050	659	2852
Males by Race					
White	70	68	68	58	66
Black	16	19	14	31	19
Hispanic, other	14	13	18	12	15
Base number[a]	247	133	411	216	1007
Females by Race					
White	61	68	73	50	63
Black	25	18	17	36	24
Hispanic, other	14	13	10	13	12
Base number[a]	517	119	480	323	1439

[a] Information on race was not available for 146 males and 260 females.

TABLE 2-6

Sex and Race of Former Students by Work Status While in School

Sex, Race of Respondents	Co-op	Work Study	Comparison	Total
	%	%	%	%
Male	34	56	42	41
Female	66	44	58	59
Base number	1011	316	918	2245
Males by Race				
White	75	84	71	75
Black	13	10	15	13
Hispanic, other	12	6	15	12
Base number[a]	306	142	309	757
Females by Race				
White	71	78	80	75
Black	21	18	16	18
Hispanic, other	9	3	5	7
Base number[a]	564	120	475	1159

[a] Information on race not available for 154 males and 175 females.

TABLE 2-7

Grade Level of Current Students by Sex and Work Status

Grade Level	Males				Females			
	Co-op	Work Study	Part Time	No Job	Co-op	Work Study	Part Time	No Job
	%	%	%	%	%	%	%	%
10th grade	*	5	2	7	1	5	1	4
11th grade	24	17	22	26	14	18	16	22
12th grade	76	78	76	68	85	76	83	73
Base Number	283	143	475	251	587	130	573	408

*Less than one-half of one percent.

TABLE 2-8

Year Former Students Left School by Sex and Work Status in School

Year Left School	Males			Females		
	Co-op	Work Study	Comparison	Co-op	Work Study	Comparison
	%	%	%	%	%	%
1972 or earlier	18	23	27	21	23	23
1973	13	17	12	16	16	15
1974	65	58	59	59	56	59
1975	4	2	3	4	5	3
Base number	347	177	385	662	138	529

Operational Classifications

Once the data were collected, the students were classified according to vocational areas studied and work status while in school. Whenever possible, information for these classifications was obtained from both the students and their official school records. Unfortunately, information about work status and the vocational courses in which they were enrolled was provided for only about half of the current students by their schools. Vocational enrollment information was virtually complete (96 percent) for the former students. Even for the former students, however, information on work status while in school was provided by the schools for only 65 percent of the total sample.

The current students were asked to indicate the vocational courses that they were taking in two different ways. The first was to select items on a checklist of the seven major vocational areas with examples of popular courses in each area (see question 4 in Appendix A-1). The second was to respond to an open-ended question which asked: "What is the title of the course(s) you are taking?" This question was preceded by one which attempted to define vocational courses: "During this school year, have you taken any courses that train you to obtain employment in regular occupations?" (see questions 43 and 44 in Appendix A-1).

Because of the necessity for brevity in the mail questionnaires which were sent to former students, the check list of vocational areas was not included. The open-ended questions were almost identical to those above, except that they referred to the period "while you were in high school" (questions 8 and 8a in Appendix A-2).

To obtain information on whether or not a student held a school-supervised job, the current students were asked: "Is (was) there someone from your school, a coordinator, who should visit you and your employer on this job?" (question 69, Appendix A-1). The former students were asked: "Were you a co-op or work-study student (part-time school and part-time work) in high school?" (question 9, Appendix A-2). The schools were also asked to indicate whether or not the students held school-supervised jobs.

In those cases in which data were available from both students and their schools, comparisons were made to test the agreement across the two sources. Information on the courses former students had taken was available from the schools for 96 percent of the respondents. Table 2-9 illustrates the results of a cross-classification of the students' reports of the courses they had taken with the schools' records on these same students.

The major discrepancies were between the schools' and students' reports as to vocational status of the students. Surprisingly, the schools reported that more students had taken vocational courses than the students did. The question designed to solicit this information

TABLE 2-9

Comparison of Former Students' and Schools' Reports of
Vocational Areas Studied While in School by Sex

Schools' Report of Vocational Area	Male Students' Report of Area								
	Office	Distributive	Health	Home Economics	T&I	Technical	Argiculture	None	Total
Office occupations	17				5			18	40
Distributive education	7	20		1	14	4		66	162
Health			12		1			2	15
Gainful home economics				6	1			2	9
Trade and industry	1	4	1		209	74	1	79	369
Technical		1		1	1	16		13	32
Agriculture				2	1		9	4	16
Not a vocational student	12	13	1	4	41	17	4	147	239
Totals	37	88	14	14	273	111	14	331	882

Percent agreement $\frac{486}{882}$ = 55%

Schools' Report of Vocational Area	Female Students' Report of Area								
	Office	Distributive	Health	Home Economics	T&I	Technical	Agriculture	None	Total
Office occupations	522	15	1	2	2			79	621
Distributive education	56	113			2			46	217
Health	2		74					14	90
Gainful home economics	12	1	1	19				22	55
Trade and industry	15	1	4	3	27	3	1	15	69
Technical								1	1
Agriculture								1	1
Not a vocational student	90	14	6	1	1	3		114	229
	697	144	86	25	32	6	1	292	1283

Percent agreement $\frac{869}{1283}$ = 68%

asked the students about "...courses that trained you to obtain employment in regular occupations." It was phrased in this way because pretesting of the questionnaire had revealed that students did not know what vocational courses were. It might have been expected that students who took prevocational, industrial arts, or personal skills courses would have considered them as training for occupations, but the comparison indicates that many of the students whom the schools considered vocational did not see themselves as being prepared for occupations.

Among the students who were identified as "vocational" by both the schools and the students themselves, the largest discrepancies in reports of courses taken were between trade and industrial (T&I) and technical courses for the males, and between office occupations and distributive education for the females. Table 2-10 summarizes the comparison of school and student reports of vocational areas studied for both current and former students. Because school data were available for only half of the current students, the full comparison, such as that shown in Table 2-9 for the former students, is not reported. For those current students for whom school data were available, the results were very similar to those found for the former students.

Information from the schools on whether or not the respondents had held school-supervised jobs was available for 65 percent of the former students. Table 2-11 presents the comparison of the school and student reports. These comparisons yielded an identical level of agreement for males and females--77 percent. Among the current students the figure was slightly higher--81 percent.

Whenever discrepancies are found between two sources of data, the question arises as to which is the most appropriate source to use. The greatest precision would have been obtained by including only those respondents for whom the school and student reports were in agreement. This, however, would have resulted in a considerable reduction in the number of usable observations, and the power of all statistical tests would have been reduced. In addition, when the schools and the students disagreed, the students were less likely to say they took vocational courses than the schools were. Consequently, the student responses yielded a more "conservative" definition. Because the students were also the source of information on the kinds of jobs they held, the source of the information used to code courses and jobs was constant. This was important in tracing the extent to which students' jobs were related to the occupational areas they studied.

For these reasons, it was decided that all usable questionnaires would be retained and that the responses to the open-ended questions on "...courses that train(ed) you to obtain employment in regular occupations" would be used to define vocational students. The responses to this question were coded as shown in Appendix A-3. Respondents who did not answer the question were considered nonvocational. This question was used instead of the check list because it was identical for current and former students, and because it permitted detailed coding of the courses.

TABLE 2-10

Summary of Schools' and Students' Reports of Vocational Areas Studied While in School, Current and Former Students, by Sex

School-Student Comparison	Current Students		Former Students	
	Male	Female	Male	Female
	%	%	%	%
School and student report agreed	68	72	55	68
School reported vocational, student reported not vocational	16	8	21	14
Student reported vocational, school reported not vocational	12	13	10	9
School and student reports disagreed on vocational areas	4	6	14	9
Base number	626	804	882	1283

TABLE 2-11

Comparison of Former Student and School Reports of School Supervision of Jobs Held While in School, by Sex

Schools' Reports of Supervision	Students' Reports of Supervision					
	Males			Females		
	Supervised	No	Total	Supervised	No	Total
School supervised job	245	44	289	373	78	451
No school supervision	98	222	320	120	285	405
Totals	343	266	609	493	363	856
Percent agreement student and school	$\frac{467}{609} = 77\%$			$\frac{658}{856} = 77\%$		

To group the respondents by their work status during high school, the coded responses about vocational courses were compared to the responses on school supervision of jobs. Students in vocational courses who worked at school-supervised jobs were defined as co-ops. Students who did not take vocational courses but who held school-supervised jobs were defined as work study. Current students who worked in jobs without school supervision were classified as part-time, and students who were not working were classified "no job." For former students, the definitions of co-op and work study were the same as those for the current students. Due to the format of the question that asked former students about jobs held during high school, it was not possible to separate the "part-time" and "no job" groups. They were therefore combined in a group labeled "comparison." Tables 2-12 and 2-13 show the final distribution, by work status and the three sources of information, on vocational courses for both current and former students. It will be noted that no entries are made in these tables under the open-ended question for the work study group. This is so because, by definition, the work study students were those who reported (in response to the open-ended question) that they had not taken vocational courses.

These tables indicate the differences between the students' and the schools' reports of vocational courses. Table 2-12 also shows the difference between the students' responses to the check list and to the open-ended question. Over both of the tables, the discrepancies between the various sources average about four percentage points.

TABLE 2-12

Comparison of Three Sources of Information on Vocational Courses Being Studied by Current Students, by Sex and Work Status

	Male Students										
	Co-op			Work Study		Part-time			No Job		
Vocational Area	Check list	Open end	School file	Check list	School file	Check list	Open end	School file	Check list	Open end	School file
	%	%	%	%	%	%	%	%	%	%	%
Office occupations	3	4	1	6	1	8	3	4	8	4	5
Distributive education	50	52	52	13	10	13	10	14	9	7	6
Health	3	3	-	3	-	2	*	-	1	*	-
Gainful home economics	2	2	-	1	-	4	3	1	5	2	1
Trade and Industry	27	33	31	19	19	30	24	33	27	26	35
Technical	4	5	-	3	-	8	10	5	10	7	6
Agriculture	1	1	1	1	-	4	3	5	5	2	4
None	9	-	15	53	70	31	46	37	37	52	44
Base number	277	[illegible]	169	142	95	467	467	222	240	240	140

*Less than one-half of one percent.

	Female Students										
	Co-op			Work Study		Part-time			No Job		
Vocational Area	Check list	Open end	School file	Check list	School file	Check list	Open end	School file	Check list	Open end	School file
	%	%	%	%	%	%	%	%	%	%	%
Office occupations	47	51	36	19	12	55	50	47	46	42	40
Distributive education	29	31	40	20	9	9	8	8	7	7	8
Health	11	10	1	6	-	4	3	2	4	2	1
Gainful home economics	5	4	*	11	-	8	3	5	16	6	4
Trade and Industry	2	4	10	2	12	1	3	5	1	5	10
Technical	-	*	*	1	-	*	1	*	*	-	1
Agriculture	-	-	-	-	-	*	*	*	-	-	-
None	5	-	12	41	68	21	30	32	25	38	35
Base number	584	587	285	127	78	569	569	265	397	397	176

TABLE 2-13

Comparison of Student Responses and School Records on Vocational Courses Studied by Former Students, by Sex and Work Status While in School

	Males					Females				
	Co-op		Work Study	Comparison		Co-op		Work Study	Comparison	
Vocational Area	Student	School	School	Student	School	Student	School	School	Student	School
	%	%	%	%	%	%	%	%	%	%
Office occupations	5	3	4	5	6	64	48	18	56	57
Distributive education	23	24	26	2	10	20	24	24	4	7
Health	3	3	1	*	1	11	10	8	3	3
Gainful home economics	2	1	-	1	2	2	3	5	2	6
Trade and Industry	46	48	20	30	46	3	5	4	3	7
Technical	18	3	3	13	4	*	-	-	1	*
Agriculture	2	2	1	2	2	*	-	-	*	*
None	-	16	47	45	29	-	12	40	32	20
Base Number	347	343	167	384	372	664	640	131	527	512

These comparisons demonstrate the problems inherent in collecting accurate classification data. These problems should be considered when evaluating the results reported in subsequent chapters.

Summary

Discussions of four methodological aspects of the present study have been presented: (a) the instruments used to collect data, (b) the procedures used to select a sample, (c) response rates, and (d) classifications of vocational, cooperative, and work study students.

The Instruments. School record cards and self-administered questionnaires were used to collect data from current students. Mail questionnaires were sent to former students. Cost information was obtained from questionnaires that were filled out by school personnel.

Sampling. A total of fifteen school districts in the eastern half of the United States participated in the study. Urban, rural, and suburban schools were represented. Usable questionnaires were obtained from 2,854 current students (1974-75 school year) and from 2,245 former students (classes of 1972, 1973, 1974).

Response Rates. Questionnaire completion rates varied widely, with an overall rate of completion (for the twenty-four schools which kept such records) of 73 percent among current students. Among former students, second and third mailings and telephone interviews yielded a response rate of about 50 percent. Statistical comparisons tested for nonresponse bias.

Classifications. Current students were asked to indicate their work status and the vocational courses in which they were enrolled on three different questions. In addition, the schools were asked to provide information on the students' work status and vocational programs while in school. This was provided for only about half of the current students, but for virtually all of the former students (in the case of vocational courses), who also answered two questionnaire items dealing with vocational courses and work status. Students who took vocational courses and worked at school-supervised jobs were defined as co-ops. Students who did not take vocational courses but who worked at school-supervised jobs were classified "work study." Students who worked at jobs without school supervision were categorized as part-time, and students without jobs were classified "no job." The many problems inherent in collecting accurate classification data should be kept in mind when interpreting the results that are reported in this study.

In general, the results which are presented indicate either no differences among the groups of co-op, work study, part-time and no job students, or they reveal that some advantage accrues to the students who held school-supervised jobs. It seems likely that if more precise measures of the vocational course and school supervision variables were possible, the advantages found for school supervision might have been even more substantial.

PART III
ECONOMIC COSTS AND BENEFITS

CHAPTER 3

ANALYSIS OF COSTS

Introduction

The analysis of costs that is presented in this chapter attempts to determine whether any significant differences in marginal and average costs exist between work experience and nonwork experience vocational education programs. The previous chapters and those which follow identify a number of apparent benefits which accrue to work experience program graduates that exceed those that accrue to regular vocational education program graduates. Such benefit information provides necessary but not sufficient data from which judgments can be made regarding the relative merits of work experience and nonwork experience programs. The cost information provided in this chapter is a necessary complement to the benefit findings.

In the vast majority of vocational schools, work experience students attend the same classes as nonwork experience students. For the former, the job situation experience is an "add-on" to the regular vocational program. This means that many important in-school costs for work experience and nonwork experience students are not expected to differ. For example, in a typical school, joint use is made of buildings, classroom space and supplies. However, costs of coordinating the work experience program may be substantial. It is not unreasonable to expect, therefore, that work experience costs per student will exceed nonwork experience costs per student, other factors the same.

Conceptual View of Costs

There are a number of different ways to examine the costs of educational programs, including marginal costs, average costs, added costs, opportunity costs, and current and fixed costs.

Marginal Costs. The most important cost concept for the present study is marginal cost, defined here as the incremental change in the total cost of an educational program associated with an incremental change in the output of that program. The measure of educational output used in this investigation of costs is student enrollment, expressed in terms of average daily attendance (ADA). This measure of output is only a proxy for output, since no allowance has been made for the quality of students in terms of skills. Marginal costs of work experience and nonwork experience vocational education programs are estimated by specifying a total cost function. Using the statistical technique of regression analysis, it is possible to determine the incremental change in total costs that results from a unit change in enrollment (ADA).

Cost Data Used For Analysis

Cost data for this study were obtained via mail questionnaire from selected secondary schools in the following regions of the eastern United States: New England, Middle Atlantic, East North Central, East South Central, and South Atlantic.

In most of these areas, city, suburban, and rural districts were represented. When possible, schools were selected which offered both work experience and nonwork experience programs in similar curricula. From the sample of schools, cost data were collected on forty work experience and forty-four nonwork experience programs for the school year 1974-75.

Responses to the mail questionnaires provided the following information on work experience and nonwork experience programs in the schools sampled: number of teachers, salaries of teachers, number of coordinators and their salaries, fringe benefits as a percentage of salaries, coordination-related travel costs, consumable supplies, and repair costs.

It should be emphasized that the costs analyzed here are school costs. If the focus were on the private costs of vocational education, such factors as students' foregone earnings, books, and possible tuition and fees would have to be considered. There is not, however, any reason to expect that these costs differ significantly between work experience and nonwork experience students. It should also be noted that possible added costs to the employer of hiring work experience students are not taken into account in this analysis in this chapter (see Chapter 8).

Marginal Cost Estimates

In order to estimate the marginal costs of both work experience and nonwork experience vocational programs, a total cost function is specified for both programs as in equation (1) below.

$$(1)\quad TC = a + b_1 X_1 + e$$

where: $TC \equiv$ Total Cost (defined as teachers' and coordinators' salaries and fringe benefits, plus coordination related travel expenses).

$X_1 \equiv$ Enrollment (ADA-average daily attendance is used to reflect program enrollment).

$e \equiv$ regression error term.

Average Costs. Average costs are defined as total program costs divided by program enrollment (ADA). Average costs may be more than, equal to, or less than marginal costs. Educational costs are most often expressed in average terms. However, the most useful information for resource allocation purposes is marginal cost data. If, for example, a school administration wants to know in which program areas to encourage enrollment increases in order to minimize total costs, the use of average cost data alone might lead to an inefficient decision. Some programs, for example, that have high average costs as a result of low enrollment might also have low marginal costs, and some programs with low average costs might also have high marginal costs.

Average cost and enrollment data enable investigation of the possibility of such nonlinear average cost functions. The average cost function provides the investigator with a view of how average costs change as program enrollment changes. If a U-shaped function exists in which average costs fall to a minimum, and then rise as enrollment increases, average cost and enrollment data permit estimation of optimal (least cost) enrollment levels in this context. Nonlinear average cost functions in education have been identified by other researchers.[1] Although in the present study the data are limited, the possibility of a nonlinear average cost function in vocational education will be explored.

Added Costs. Added cost is defined as the marginal (or average) cost of an educational program minus the marginal (or average) cost of an alternative program that would exist in the absence of the first. For example, in the case of vocational education, if schools did not offer work experience programs, they would offer regular vocational programs in their stead. Expanding enrollment in work experience programs probably means reducing enrollment in regular vocational classes, assuming that school, plant, and equipment resources are fixed. Therefore, the added cost (marginal or average) of a work experience program is the difference between the cost of expanding that program and the cost of expanding an alternative vocational program, where expansion refers to enrollment in existing programs.

Opportunity Costs. All costs that are incurred for any activity are really opportunity costs; that is, investment of funds in one activity precludes the use of those funds for an alternative activity. Hence, the true cost of any activity chosen is the highest valued foregone alternative opportunity. For example, suppose that students spend fifteen hours per week in school. In addition to any direct school costs they may incur, the students incur indirect costs, such as loss of labor market wages they might have earned during those fifteen hours per week.

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[1] See Elchanan Cohn, "Economies of Scale in Iowa High School Operations," Journal of Human Resources, Vol. III (Fall 1968), pp. 422-32; Walter Hettich, "Equalization Grants, Minimum Standards, and Unit Cost Differences in Education," Yale Economic Essays (Fall 1968), pp. 5-55 (a study of elementary and secondary schools in New York and Michigan); Donald D. Osburn, "Economies of Size Associated with Public High Schools," Review of Economics and Statistics, Vol. III, No. 1 (February 1970), pp. 113-15 (a study of Missouri public high schools); and John Riew, "Economies of Scale in High School Operations," Review of Economics and Statistics (August 1966), pp. 280-87 (a study of Wisconsin public high schools).

One finding of this study is that work experience and nonwork experience students spend about the same number of hours per week in school. They therefore incur similar foregone earnings during this period, assuming that they would be equally productive and paid the same wages in the labor market. The working hours for work experience students are "add-on" hours, not substitute hours for regular vocational schooling. Both groups average approximately fifteen hours per week for in-school vocational education-related laboratory and class work.

Current and Fixed Costs. Current (or variable) costs refer to costs which fluctuate as output changes. In vocational education, for example, costs of class-related materials used in laboratories and shops will rise as enrollment increases. Certain other costs, however, are independent of enrollment; e.g., the cost of heating buildings, maintenance costs, and currently in-place equipment costs do not vary as enrollment changes. These costs are called fixed costs. Current costs are referred to as short-run costs; fixed costs are considered to be long-run costs. Teacher and coordinator costs are usually thought of as current costs, but in fact such costs are both fixed and current. They may or may not vary as enrollment changes, and there are rigidities to adjusting staff sizes in the short run. (For example, although enrollment may fall during one year, staff would not be laid off, since a rise in enrollment can be anticipated for the following year.)

Marginal costs can be calculated from a total current cost function or a total current-plus-fixed cost function. The present study focuses on current costs to the exclusion of fixed costs for a number of reasons. First, fixed costs are what economists call "sunk" costs; that is, if schools and equipment are in place, these costs will be incurred regardless of the kinds of programs that are offered. (Note that we assume here that in the absence of work experience programs, regular vocational programs will be offered; thus, fixed costs will be incurred in any event.) Second, marginal costs of expanding programs can be estimated without fixed cost information, as noted above. Third, fixed cost information is extremely costly and difficult to extract and is of questionable usefulness in this case since work experience and nonwork experience vocational students use these inputs simultaneously and jointly. Finally, fixed costs are normally only a small portion of total yearly costs; teaching and related costs represent the major cost item in education.[2]

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[2] In a study of vocational education costs, Kaufman et al. found capital costs of buildings to represent about 8.4 percent of vocational-technical senior high school costs and 7.2 percent for comprehensive senior high schools. Equipment costs were found to be even more negligible. See J. J. Kaufman, T. W. Hu, E. W. Stromsdorfer, and M. L. Lee, A Cost-Effectiveness Study of Vocational Education (University Park, Pa.: Institute for Research on Human Resources, 1969). Since their study compared comprehensive schools to vocational schools, a slight bias was introduced when capital costs were ignored. In the present study there is no reason to suspect capital costs to differ between work experience and nonwork experience programs, therefore added costs are not affected.

Equation (1) is estimated using cross-sectional regression analysis; the observations derive from reported school program data. Forty observations on total cost and ADA are included for work experience programs and forty-four for nonwork experience programs.

Having estimated equation (1), marginal cost is regression coefficient b. That is, the first derivative of total cost with respect to X(ADA) is equal to b ($\partial TC/\partial X = b$), or less precisely, $\Delta TC/\Delta X = b$. Table 3-1 below presents the total cost equation regression coefficients for work experience and nonwork experience programs.

Marginal costs based on the data in Table 3-1 indicate that the marginal cost of work experience is $469, while for nonwork experience marginal cost is $344. Marginal cost in this context is the change in total cost associated with the addition of one student to the program. Thus, the added cost of work experience is $125 ($469-$344).[3]

TABLE 3-1
Total Cost Equation Regression Coefficients
in Dollars, 1974-1975

	Work Experience	Nonwork Experience
Intercept	-401.2949 (-0.0986)	-26,178.2185 (-1.7808)
Enrollment (ADA)	469.1088** (10.2486)	343.5148** (9.6150)
$\bar{R}^2$	.73	.68
Number of Observations	40	44

** - Indicates statistical significance at the one percent level.

$\bar{R}^2$ - Coefficient of determination, adjusted for degrees of freedom

- The values in parentheses below the regression coefficients are student t statistics from which the statistical significance of the coefficients can be determined. A t value greater than two indicates statistical significance.

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[3] The average cost of work experience per ADA is estimated to be $461, while the average cost of nonwork experience is $251, which suggests an added average cost of $210 for work experience programs.

Work experience and nonwork experience students generally attend the same classes at school. The added cost of work experience education, therefore, is most likely to be accounted for by coordinators' salaries, fringe benefits, and related travel expenses. That these costs are significant is suggested by the fact that average coordinator salary costs per work experience student are $66. It should be noted that this figure is based on an understatement of coordinator salary costs, since many schools did not report coordinator costs separately if teachers performed coordination duties. Coordination travel costs per work experience student amount to $11; these costs may also explain a portion of the added cost of work experience education. Student/teacher ratios are higher for nonwork experience programs; this fact would also lead to higher added average costs of work experience programs.

The data indicate that work experience students spend slightly more time per week in school than nonwork experience students--15.1 hours and 14.6 hours respectively. In addition, 61 percent of work experience students' in-school hours are spent in the laboratory or shop, compared to 54 percent for nonwork experience students. These differences are not significant, however, and probably reflect the type of programs sampled within each of the two cohorts. It should be noted that this sampling variability can also influence to some degree the marginal and average cost figures which were derived.

Another source of variability in total cost may be the quality of education provided to students. Although measuring the quality of education is difficult, certain proxies may provide some indication of it. For example, lower teacher/student ratios permit more individualized attention for students but can be expected to raise total costs, other factors the same. In addition, if teachers' salaries are related to their productivity, then variability in salaries may reflect variability in quality across programs, other factors the same.

As noted earlier, both cohorts of students analyzed here normally attend the same classes, but it is of interest to determine whether or not student/teacher ratios and average teachers' salaries are significantly related to total cost in the pooled sample. Equation (2) below provides a total cost equation in which X_1 represents enrollment; X_2 (average teachers salary), and X_3 (student/teacher ratio) are additional explanatory variables in the equation. Total cost is derived in the same way as it was in equation (1).

$$(2)\quad TC = -19218.15 + 355.9488X_1^{**} + 4.3422X_2^{*} - 914.4005X_3^{**}$$

$$\quad (-0.6556) \qquad (18.6836) \qquad (2.1735) \qquad (-7.8786)$$

$$\bar{R}^2 = .82$$

$$\text{F Ratio} = 124.56$$

$$N = 83$$

Note: * - Indicates statistical significance at the 5 percent level.
** - Indicates statistical significance at the 1 percent level.

All three regression coefficients are statistically significant. The coefficient of X_2 and X_3 have the expected signs. Not surprisingly, higher average salaries result in higher total costs, other factors the same. Higher student/teacher ratios result in lower total costs, as we would expect.

Schools that responded to the cost questionnaire were asked to allocate teaching resources between work experience and nonwork experience students. Average teachers' salaries were about the same for both groups, but student/teacher ratios were 39:1 for the former and 59:1 for the latter. Of the two cohorts of students, then, work experience students (who may be, at least among the co-ops, the better, more highly motivated students) appear to receive more individualized attention than nonwork experience students. This extra attention provides a possible source for the added costs of work experience vocational education as noted above. Extra benefits may also accrue to work experience students from this added cost factor.

The marginal cost estimates in Table 3-1 were based on current costs, including teachers' and coordinators' salaries, fringe benefits, and coordination-related travel expenses. In Table 3-2, TC1 includes consumable supplies as well as the above costs; TC2 includes consumable supplies and repair costs in addition to the above. The inclusion of consumable supplies in total costs (TC1 in Table 3-2) increases the marginal costs of work experience programs from \$469 (see Table 3-1) to \$484, while nonwork experience marginal costs rise from \$344 (see Table 3-1) to \$366. The added marginal cost of work experience falls from \$125 to \$118. The inclusion of both consumable supplies and repair costs results in a marginal added cost estimate for work experience of \$154. Note that in this last estimate (TC2), only fifteen observations are included on work experience and thirty on nonwork experience programs. In all cases the marginal cost estimates in Table 3-2 are statistically significant at the 1 percent level.

All of the marginal cost estimates in this chapter were made using linear approximation methods. That is, marginal costs are constrained to be constant as enrollments change. Prior to selecting this form of total cost equation for estimation, nonlinear forms were investigated in which both enrollment and enrollment squared were included (e.g., $TC = a + b_1 X_1 + b_2 X_1^2$). The enrollment variable (X_1) was not significant for the work experience, nonwork experience, and pooled equations in this nonlinear equation, and the variance in total cost explained did not rise significantly.[4] The linear approximation method was therefore employed since it produced statistically significant results and

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[4] A cubic form of nonlinear equation was also estimated which yielded inconclusive results, although in the pooled equation with more continuous observations, nonlinearity was apparent.

TABLE 3-2
Total Current Cost Equation Regression Coefficients
(Including Consumable Supplies and Repairs), in Dollars, 1974-75

	Work Experience		Nonwork Experience	
	TC1	TC2	TC1	TC2
Intercept	-539.0388 (-0.1266)	5394.9823 (0.6449)	-28515.4675 (-1.7657)	-50962.7997 (-1.8532)
X_1(HDA)	484.1811** (10.1095)	571.9120** (7.8777)	366.0377** (9.4335)	417.682** (7.5251)
$\bar{R}^2$	.72	.81	.68	.66
Number of Observations	40	15	43	30

Note: - TC1 includes teachers' and coordinators' salaries and fringes, plus coordination travel expenses and consumable supplies
- TC2 includes TC1 plus repair costs
- ** indicates significance at one percent level.

reasonable estimates in keeping with a priori expectations. It should be noted, however, that even though a linear approximation estimate was used, the true underlying marginal cost may be nonlinear. If more numerous and continuous observations were available, the nonlinearity might become empirically apparent.

Average Cost Estimates

Average costs are defined as total costs divided by enrollment (ADA). When total costs include only teachers' and coordinators' salaries and fringe benefits, the average per student cost of work experience programs is $450, while for nonwork experience programs the average per student cost is $251. Adding coordination-related travel expenses to work experience programs raises the average cost per student to $461. The addition of consumable supplies to total costs of both programs increases the average costs of work experience to $474, while nonwork experience average costs rise to $268. Considering only salaries, fringes and coordination-related travel expenses, the average added cost per student of work experience is $210 ($461-$251).

Table 3-3 presents work experience and nonwork experience average and added costs per student by selected vocational areas. These cost figures should be interpreted with extreme caution because the number

TABLE 3-3
Average Dollar Costs Per Student by Selected Vocational Areas, 1974-75

Program	Work Experience	Nonwork Experience	Pooled	Added Cost of Work Experience
Business, Office and Commercial ($)	$608	$226	$249	$382
N =	5	10	15	
Av. ADA =	46	366	240	
Distributive ($)	$397	$190	$357	$207
N =	11	2	13	
Av. ADA =	41	54	43	
Health ($)	$504	$236	$385	$268
N =	5	4	9	
Av. ADA =	30	30	30	
Home Economics ($)	$131	$ 97	$102	$ 34
N =	2	6	8	
Av. ADA =	120	229	202	
Trade and Industry ($)	$906	$260	$285	$646
N =	52	19	24	
Av. ADA =	39	255	210	

of observations in many cells is very small. The small number of observations at this level means that apparent cost differences in vocational areas may reflect biases in the sample and imperfect data as well as differences in consumable supplies, teacher and coordinator resource uses, and scale economies. These biases tend to be less significant at higher levels of aggregation but are unavoidable at this level. Given this problem of bias, the most accurate cross-vocational area comparison figures are probably the pooled data shown in Table 3-3. The pooled data indicate that average costs are highest in Health and lowest in Home Economics programs. One reason for high average costs in the health curriculum may simply be the low average enrollments in those courses.

Low enrollment in work experience courses may also in part explain why their average costs are high relative to nonwork experience programs. That is, the added average cost of work experience programs are high because of coordinators' salaries, fringe costs, and related travel expenditures; but, in addition, these extra costs are expended inefficiently because relatively few students are served. Economies of scale may exist. (That is, as the program grows, costs per student may go down.)

TABLE 3-4
Average Cost Regressions

	Work Experience	Nonwork Experience	Pooled
Intercept	927.1492** (4.9497)	319.1514** (7.4603)	528.9023** (8.6915)
ADA	-8.4704* (2.1933)	-0.4341* (2.0758)	-1.1554** (2.8313)
ADA^2	0.0184* (2.0023)	0.000399* (2.3328)*	0.000849** (2.3272)
$\bar{R}^2$	.07	0.8	.07
F Ratio	2.44	2.74	4.20
Number of Observations	40	43	83

Note: * significant at 5 percent level.
** significant at 1 percent level.

To investigate the possibility of scale economies, nonlinear average cost functions were fitted to work experience data, nonwork experience data, and pooled data. The form of the function is $AC = a + b_1 X_1 + b_2 X_1^2$, where X is enrollment (ADA) and AC is salaries, fringes, travel, and supply costs divided by ADA. A U-shaped average cost function in which average costs at first decline, reach a minimum, and then rise as enrollment increases would be reflected in the above equation by b_1 being negative and b_2 being positive. In order to have confidence in the results, both coefficients should be significant. The estimated equations appear in Table 3-4. The signs of the regression coefficients confirm the presence of a nonlinear average cost curve in all three cases, but enrollment and enrollment squared explain only a small portion of the variance in average costs. Nevertheless, the results suggest that economies of scale operate in these vocational programs.

On the basis of these data, and keeping in mind their limitations, it is possible to estimate the minimum average cost enrollment levels for work experience and nonwork experience programs that would ensure optional functioning. These estimates are obtained by taking the first derivative of the regression equations; setting the results equal to zero, and solving for the level of enrollment.[5] For work experience programs, the minimum cost level of enrollment is 230 students; for nonwork experience, it is 544 students. These optimum enrollment estimates compare with the actual mean enrollments of 62 for work experience programs and 289 for nonwork experience programs.[6]

Summary

According to the cost analysis in this chapter, work experience programs have an added marginal cost over nonwork experience of about $125. That is, adding a student to a work experience program costs a school $125 more than if the student were to enroll in a regular vocational program. The added cost probably derives from the extra costs of coordinators and coordination-related activities associated with work experience programs.

When all of the vocational programs in the sample that were used in this analysis are placed into two cohorts--work experience and nonwork experience--economies of scale of operation become evident. Current enrollments appear to be well below the estimated minimum average cost levels of enrollment that could be attained.

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[5] For the work experience equation the first derivative is $\partial AC/\partial ADA = -8.4704 + (2)(.0184)(ADA)$. Setting this equal to zero and solving for ADA gives an ADA of 230.

[6] If average costs fall as program size increases, then marginal costs should be below average costs. This fact is consistent with our empirical estimates, where marginal costs were found to exceed average costs at the average current levels of enrollment. However, it should be noted that the empirical estimates of marginal costs provided above are linear approximations of a possible nonlinear relationship. Therefore, for any particular program size, the linear marginal cost estimate may be too high or too low.

CHAPTER 4

THE EFFECTS OF COOPERATIVE EDUCATION ON POST-HIGH SCHOOL EMPLOYMENT EXPERIENCES

Introduction

The justification for cooperative education centers around its purported ability to enhance the future labor market positions of students by placing them in school-supervised jobs that are related to their courses of study. (Work study programs were not expected to exhibit such benefits in this study because their students are not usually placed in course-related jobs.) The basis for and validity of such claims are explored in this chapter, using data on former students, who are classified as work-study, cooperative, or comparison (part-time or no job).

The employment-related benefits of cooperative education can be formulated in the context of job search theory. Three hypotheses emerge from this formulation. They are:

1. Cooperative education will reinforce a student's assortment of marketable job skills and attitudes;

2. These additional skills will enable the student to find a "better" job than he would have found otherwise; and

3. These additional skills will enable the student to find a comparable job in less time than it would ordinarily have taken him.

In general, the results of this study support the contention that a graduate's job qualifications are enhanced by cooperative work experience. Although co-op students do not get better (higher-paying) jobs, they do acquire suitable jobs within a shorter period of time than do students without cooperative work experience. On an individual basis, students incur no appreciable costs while gaining this advantage.

The Job Search Framework

The job market can be viewed as a continual matching process: each employer offers certain compensations to personnel who best fit the requirements of the available positions, and members of the labor pool offer their abilities in exchange for some expected compensation.

Barring constraints, the search process continues until the employer's personnel requirements are exactly met when an individual worker is found whose expectations are in turn met by that employer.

However, various cost factors limit the length of the search from both perspectives. Employers encounter interviewing and applicant screening costs as well as loss of profits as long as positions remain unfilled. Job training costs must be met once an individual is actually hired. If the employer finds that there is a mismatch between an applicant and a job, none of these costs can be recovered, and further costs must be incurred to locate a more appropriate person to fill the position. Job applicants also incur expenses in seeking an appropriate position. They, too, encounter interviewing and job screening costs; if they are unemployed while searching, they lose income. They also face the additional costs of finding another job if the one selected proves to be unsatisfactory. For both the employer and prospective employee, these costs tend to reduce the time spent in searching for applicants or jobs.

These costs are illustrated in Figure 1. The amount of compensation is represented on the horizontal axis, with the probability of being hired on the vertical axis. The curve of hiring E_o depicts an individual's

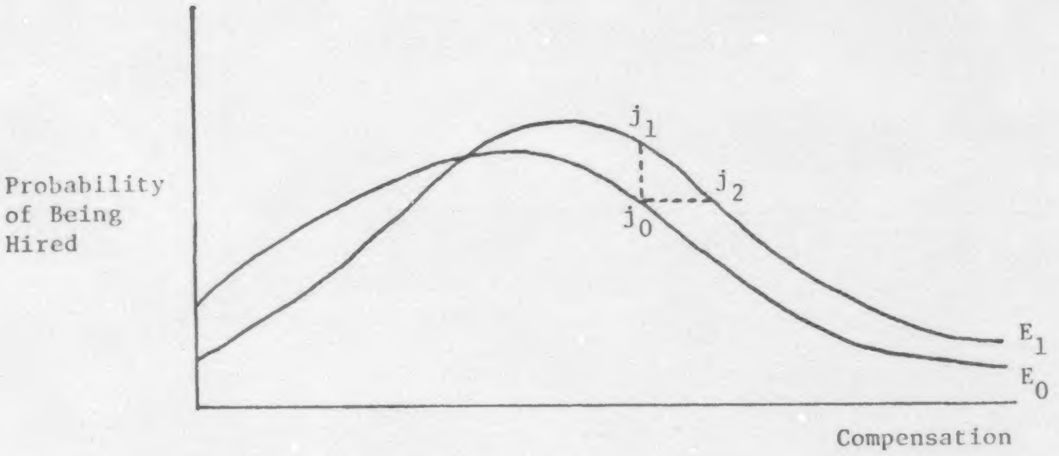

Figure 1. Probability of Being Hired at a Given Level of Compensation

likelihood of being hired for a position at a given compensation level. E_o reflects the employer costs relative to the individual in question. The peak point indicates the ideal matching of job and applicant; in such an instance, training costs are minimal since the person's skill and knowledge are commensurate with those required, and the possibility of having to incur further hiring costs is negated. Moving to compensation levels on either side of the peak will cause these costs to increase; thus, the probability of the individual being hired decreases. It is assumed that the individual attempts to maximize total compensation; thus, the applicant will favor the portion to the right of the peak.[1] The actual compensation value that is finally accepted will depend on the individual's trade-off preferences (related to search costs) between current unemployment and higher future earnings.

If curve E_o is that of a regular high school graduate, how would E_o compare with the curve of a co-op high school graduate, labeled E_1? Assuming that the only difference between the two students is that one has had cooperative experience and the other has not, then E_1 would lie to the right of E_o. The presumption is that cooperative education increases one's 'employability'. As the compensation for a given job is related to the ability necessary to handle it, the peak of E_1 will lie to the right of the peak of E_o. There is no reason to assume that the basic shape of the curve would be substantially altered. At a given probability level, then, the co-op student can earn a higher level of compensation; for a given compensation level, the co-op student has a greater chance of being hired for a position at that wage.

This probability can be easily translated to apply to unemployment--that is, for a given compensation level, a high probability of being hired implies a relatively short period of search/unemployment previous to the actual hiring; conversely, a low probability of being hired suggests a relatively longer period of unemployment before a job is secured. Therefore, the possible effects of cooperative education are:

1. The co-op student can find a "better" job within the same time period as the regular high school student; or

2. The co-op student can now find a comparable job in less time.

Assuming that the graduates' preferences for unemployment vs. future earnings are not affected by their co-op/nonco-op status, the actual effects of the co-op experience should fall somewhere within the range $j_1 j_2$ relative to the nonco-op position j_o. In other words, the co-op students should exhibit either comparable unemployment and higher compensation; comparable compensation and shorter periods of unemployment; or some combination of better jobs and lower unemployment.

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[1] The following discussion will be based on this assumption; thus, only the decreasing portion of the curves will be considered.

The Sample and the Data

The information presented in this chapter is based on two data sets. One explores the full-time employment experiences of a group of high school graduates who have been out of school for between one and three years. This group was asked questions about their first, longest and current or most recent jobs. For parts of the analysis, the data for those former students whose longest jobs were different from their first were examined separately; these will subsequently be referred to as "different longest job." Similarly, data for those students whose current job is different from their first and their longest were occasionally analyzed separately; hereafter, these will be referred to as "different current job."

The sample students were divided into three groups. The co-op group consisted of those students who held school-supervised jobs and took employment-training courses; the work study group included students who had school-supervised jobs but did not take employment-related classes; and the comparison group encompassed all students who had nonschool-supervised part-time jobs, as well as those who had no jobs, regardless of whether they took employment training classes or not. This set of former student data will be used primarily to test the possible outcomes of the model.

The other set of data explores the employment experiences of a group of current high school students. Only their present part-time jobs are explored in any detail. This sample was also divided into three groups. The work study and co-op categories were defined in the same way as for the former students; the final group, part-time, included only those students with nonschool-supervised jobs.

Confirmation of the Basic Assumption

The data on current students contain several indicators of possible enhancement of positive employment qualities, the first of which is the degree of skill required by the job. If the co-op students have more skilled jobs, they will presumably leave those jobs with higher quality experience to offer potential employers; as a result, those employers will need to spend less in training the former co-op employees and might be more likely to hire them. The data support this assumption. For both females and males, the co-op and work study students held more skilled jobs than did the part-timers ($\rho = .05$).[2] Results are shown in Table 4-1.

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[2] For this entire section, the 5 percent level is used as the significance criterion.

TABLE 4-1

Degree of Skill Required for Jobs of Current Students
By Sex and Work Status

	Females			Males		
	Part-time	Work Study	Co-op	Part-time	Work Study	Co-op
Job does not require special skill	103 (19.0%)	13 (10.4%)	49 (8.6%)	185 (41.3%)	50 (39.7%)	76 (28.8%)
Job requires special skill	440 (81.0%)	112 (89.6%)	523 (91.4%)	263 (58.7%)	76 (60.3%)	188 (71.2%)
TOTAL	543	125	572	448	126	264

TABLE 4-2

High School Study as Preparation for Current Students' Jobs
by Sex and Work Status

	Females			Males		
	Part-time	Work Study	Co-op	Part-time	Work Study	Co-op
Studies not related to job	271 (48.1%)	50 (38.5%)	72 (12.3%)	248 (53.4%)	57 (39.9%)	77 (27.2%)
Studies related to job	292 (51.9%)	80 (61.5%)	514 (87.7%)	216 (46.6%)	86 (60.1%)	206 (72.8%)
Preparation for job was fair/poor	110 (37.7%)	36 (45.0%)	133 (25.9%)	115 (53.2%)	100 (69.9%)	83 (40.3%)
Preparation for job was good/very good	182 (62.3%)	44 (55.0%)	381 (74.1%)	101 (46.8%)	43 (30.1%)	123 (59.7%)
TOTAL	563	130	586	464	143	283

It is said that the more time spent on the job, the more adept workers will be at performing their required duties, and that they will generally have greater ability to deal with work environment situations. Again, the data tend to support this contention. For males and females, the classifications for hours per week and number of weeks worked are significant. A large part of the difference occurred in the categories under fifteen weeks in which more of the workers were part-timers. The bulk of the disproportionality in hours per week occurred in the groups working less than ten hours per week, in which the co-ops were less well-represented.

Note, however, that the benefits accrued only in the areas of employment and employability. Needless to say, the decision to work more hours per week means spending less time in other activities. Possible individual costs resulting from such a trade-off will be discussed elsewhere.

How much work done by the student is also performed by regular full-time employees? If the co-op students do more of the "regular" work for an employer, any skills and knowledge they acquire may be more valuable in other full-time positions. The data do not reveal that any benefits accrued to co-ops in this area. For both males and females, no significant difference existed across the three classifications of "regular" work done by the student employees.

Another of the purported advantages of cooperative education is that it gives students an opportunity for on-the-job application of classroom-learned principles. By showing potential employers that they can successfully make the transition from school to work, students reduce the employer's risk of hiring an unsuitable employee and increase their chances of obtaining jobs. Thus, some measure of the effects of classwork on the employment situation is in order.

The data show that co-ops transfer their skills better than other groups. As expected, significantly more of the co-op students, both male and female, had jobs which were related to their classroom studies. Further examination of those with related jobs reveals that a greater percentage of both male and female co-ops reported that their classroom studies were either good or very good preparation for their high school employment. They also indicated a greater applicability of school-acquired knowledge to job situations. A greater proportion of male and female co-op students reported that they used their classroom principles on their jobs most of the time, while those who indicated use of the same skills half the time or less were part-timers (see Tables 4-2 and 4-3). Clearly, then, more on-the-job transfer of in-school learning occurred in the case of the co-op students.

TABLE 4-3

Use of School-Acquired Skills on Current Students' Jobs
by Sex and Work Status

	Females			Males		
	Part-time	Work Study	Co-op	Part-time	Work Study	Co-op
None of the time	209 (37.4%)	42 (32.3%)	67 (11.5%)	194 (42.0%)	49 (34.3%)	63 (22.3%)
Some of the time	136 (24.3%)	29 (22.3%)	116 (19.8%)	136 (29.4%)	50 (35.0%)	83 (29.4%)
Half the time	66 (11.8%)	16 (12.3%)	97 (16.6%)	50 (10.8%)	16 (11.2%)	47 (16.7%)
Most of the time	81 (14.5%)	25 (19.2%)	162 (27.7%)	43 (9.3%)	17 (11.9%)	49 (17.4%)
All the time	67 (12.2%)	18 (13.8%)	143 (24.4%)	39 (8.4%)	1 (7.7%)	40 (14.2%)
TOTAL	559	130	585	462	143	282

The final aspect of the employability enhancement function to be considered involves additional skills gained through work experience. Obviously, any new talents acquired that could be offered to employers increase one's employability. Both male and female co-op students demonstrated a significantly greater acquisition of new skills on their high school jobs (see Table 4-4).

Did this apparent skill enhancement carry over after graduation--that is, did the co-op students find their additional experience to be valuable in post-high school jobs? To answer this, two somewhat crude measures were tested: the former students' self-evaluation of their preparation for jobs and the relatedness of their training to their jobs. For both males and females, a significantly higher proportion of co-op students had some type of job training, and of those who did, a significantly higher proportion of the co-op group reported that their training was good. For those with different longest jobs, a significantlv larger share of the co-op group reported having had some training; however, the quality of the training was comparable across the three classifications. For males with different current jobs, relatively more co-ops had had some preparation; in addition, relatively more co-ops assessed their preparation positively. For females, on the other hand, there was no significant difference among the categories for "preparation/no preparation" and "extent of preparation" evaluations. From this evidence, it seems reasonable to assume that students with cooperative experience had at least a short-term advantage over other students.

The measure of relatedness revealed a pattern similar to that described for the degree of preparation; only two exceptions occur. For males with different longest jobs, significantly more co-ops felt that their training was highly related to their jobs. Significantly more of the co-op females with different current jobs also reported having had some training for occupational areas. Overall, then, these results tend to support the hypothesis that the co-op student has more to offer potential employers than do the work-study or comparison students (see Tables 4-5 and 4-6).

The evidence strongly suggests that cooperative education does enhance a graduate's employability. Only one category, that of the comparability of the student and full-time employee's work, showed no benefit to the co-op group. In all other aspects tested, the cooperative group reported a significantly greater number of positive conditions which contribute to their employability.

Co-ops and "Better" Jobs

Having confirmed the primary assumption, it is now possible to test the predicted range of outcomes of the model. First, the possibility that co-ops can acquire better jobs will be considered.

TABLE 4-4

Learning of New Skills by Current Students on Present Job
by Sex and Work Status

	Females			Males		
	Part-time	Work Study	Co-op	Part-time	Work Study	Co-op
Nothing	64 (11.4%)	8 (6.2%)	16 (2.7%)	48 (10.3%)	8 (5.6%)	7 (2.5%)
Very Few Things	56 (10.0%)	8 (6.2%)	37 (6.3%)	42 (9.0%)	13 (9.1%)	7 (2.5%)
Few Things	133 (23.7%)	30 (23.1%)	135 (23.1%)	105 (22.5%)	21 (14.7%)	59 (20.9%)
Many Things	165 (29.4%)	43 (33.1%)	215 (36.8%)	133 (28.5%)	48 (33.6%)	102 (36.2%)
Very Many Things	144 (25.6%)	41 (31.5%)	182 (31.1%)	138 (29.6%)	53 (37.1%)	107 (37.9%)
TOTAL	562	130	585	466	143	282

TABLE 4-5

Former Students' Ratings of Job Preparation by Sex and Work Status

	Females			Males		
	Comparison	Work Study	Co-op	Comparison	Work Study	Co-op
First Job						
Had no high school job training	67 (18.2%)	23 (23.0%)	39 (7.5%)	90 (30.3%)	52 (34.9%)	166 (22.2%)
Had high school job training	302 (81.8%)	77 (77.0%)	479 (92.5%)	207 (69.7%)	95 (65.1%)	581 (77.8%)
Job preparation was fair/poor	146 (48.3%)	49 (63.6%)	191 (39.9%)	157 (75.8%)	66 (69.5%)	370 (63.7%)
Job preparation was good/excellent	156 (51.7%)	28 (36.4%)	288 (60.1%)	50 (24.2%)	29 (30.5%)	211 (36.3%)
TOTAL	369	100	518	297	149	747
Different Longest Job (Only)						
Had no high school job training	9 (15.5%)	6 (31.6%)	6 (9.0%)	21 (30.0%)	7 (43.8%)	6 (12.2%)
Had high school job training	49 (84.5%)	13 (68.4%)	61 (91.0%)	49 (70.0%)	9 (56.2%)	43 (87.8%)
Job preparation was fair/poor	25 (51.0%)	9 (69.2%)	28 (45.9%)	41 (83.7%)	7 (77.8%)	26 (60.5%)
Job preparation was good/excellent	24 (49.0%)	4 (30.8%)	33 (54.1%)	8 (16.3%)	2 (22.2%)	17 (39.5%)
TOTAL	58	19	67	70	16	49
Different Current Job (Only)						
Had no high school job training	7 (10.9%)	8 (28.6%)	14 (12.7%)	27 (40.3%)	13 (37.1%)	4 (6.6%)
Had high school job training	57 (89.1%)	20 (71.4%)	96 (87.3%)	40 (59.7%)	22 (62.9%)	57 (93.4%)
Job preparation was fair/poor	24 (42.1%)	13 (65.0%)	48 (50.0%)	31 (77.5%)	17 (77.3%)	33 (57.9%)
Job preparation was good/excellent	33 (57.9%)	7 (35.0%)	48 (50.0%)	9 (21.5%)	5 (22.7%)	24 (42.1%)
TOTAL	64	28	110	67	35	61

TABLE 4-6

Former Students' Ratings of Job Relatedness to Occupational Area Studied by Sex and Work Status

	Females			Males		
	Comparison	Work Study	Co-op	Comparison	Work Study	Co-op
First Job						
Did not study occupational area	47 (12.7%)	25 (25.0%)	19 (3.7%)	68 (22.9%)	52 (35.4%)	13 (4.3%)
Studied occupational area	322 (87.3%)	75 (75.0%)	499 (96.3%)	229 (77.1%)	95 (64.6%)	290 (95.7%)
Job not related to area studied	177 (53.0%)	53 (70.7%)	221 (44.3%)	178 (77.7%)	73 (76.8%)	163 (56.2%)
Job related to area studied	145 (45.0%)	22 (29.3%)	278 (55.7%)	51 (22.3%)	22 (23.2%)	127 (43.8%)
TOTAL	369	100	518	297	147	303
Different Longest Job (Only)						
Did not study occupational area	5 (8.6%)	7 (36.8%)	1 (1.5%)	17 (24.3%)	7 (43.8%)	1 (2.0%)
Studied occupational area	53 (91.4%)	12 (63.2%)	66 (98.5%)	53 (75.7%)	9 (56.2%)	48 (98.0%)
Job not related to area studied	32 (60.4%)	10 (83.3%)	32 (48.5%)	44 (83.0%)	9 (100.0%)	28 (58.3%)
Job related to area studied	21 (39.6%)	2 (16.7%)	34 (51.5%)	9 (17.0%)	0 (0.0%)	20 (41.7%)
TOTAL	58	19	67	70	16	49
Different Current Job (Only)						
Did not study occupational area	8 (12.5%)	8 (28.6%)	3 (2.7%)	20 (29.9%)	14 (40.0%)	1 (1.6%)
Studied occupational area	56 (87.5%)	20 (71.4%)	107 (97.3%)	47 (70.1%)	21 (60.0%)	60 (98.4%)
Job not related to area studied	26 (46.4%)	14 (70.0%)	56 (52.3%)	38 (80.9%)	17 (81.0%)	44 (68.3%)
Job related to area studied	20 (53.6%)	6 (30.0%)	51 (47.7%)	9 (19.1%)	4 (19.0%)	19 (31.7%)
TOTAL	64	28	110	67	35	61

Before the evidence is examined, however, an attempt will be made to characterize what is meant by a "good job." Since money is one of the primary motivations for working, a relatively higher salary or wage rate would certainly be considered one standard of job quality. The relative importance of other factors is highly variant and subject to individual preference. Such subjective qualities as the challenge and variety of the work, degree of responsibility, the work environment, etc., are factors which individuals consider when choosing a job. Some people may be happier with routines as opposed to continually changing assignments. Others may not want to cope with the added problems and pressures that are usually associated with greater degrees of responsibility and higher wages. Thus, not all of the attributes which are usually accepted *a priori* as indicative of better jobs can be universally applied.

As an initial test, the starting and leaving or most current wages for the former students' first, longest, and current jobs were examined. For each wage variable, the observations were grouped in \$.50/hour divisions ranged and controlled for the co-op, work study, and comparison groups, and for sex. The resulting chi-square analysis of each classification yielded no overwhelming indication that higher wages were associated with any particular group. This classification did show overall significance for the starting wage of the males' first jobs. However, closer examination did not reveal any great advantage to the co-op student. For those few respondents who started at a wage of \$4.50 or more per hour, a larger than average share were nonco-ops. However, this fringe included only about 2 percent of the entire distribution--this finding, therefore, can as easily be attributed to randomness as to the effects of cooperative education.

In the wage brackets in which the majority of the students were found (\$1.50-\$4.00/hour), no general pattern emerged. Neither co-ops nor nonco-ops were disproportionately represented in higher or lower wage groups.

Similarly, the starting wages for both the males' longest and current jobs were mixed; the differences between co-ops and nonco-ops were significant, but again, quite ambiguous.

Isolating the males who changed jobs since leaving high school did not eliminate the ambiguity. For those males with different longest jobs, differences among starting wages of the three groups were not significant. For male students with different current positions, such a classification was significant. However, areas of difference were again mixed; slight shifts occurred on all levels, but no general trend toward higher salaries for co-ops emerged.

Even less encouraging results appeared when examining the same data for the females of the sample. There was a significant difference among the starting salaries of the females' first jobs, but the 2 to 4 percent fringe of relatively high wages did not favor the co-op student. Results in the more prevalent wage groups were mixed and showed only slightly more consistency in the co-op students earning higher wages.

After the first job, significant differences in the females' starting wages were not present. For both the longest and current jobs, starting wages of the females in cooperative education programs were neither higher nor lower than those of their nonco-op counterparts. Those with different longest and current jobs were examined separately. When females' longest jobs were different from their first, and similarly, when their current employment differed from both their first and their longest, no significant differences were found among the starting wages of the co-op and nonco-op females.

As an alternative measure of the wage effectiveness of cooperative education, the leaving or current salaries for the first, longest and current jobs were examined in the same manner as were the starting wages. The overall results were inconclusive. Among males, the final/current wage rates for the first, longest, and current positions did not differ significantly among the comparison, work study, and co-op groups. The examination of the previously defined "job change" groups showed that no substantial wage advantage accrued to any one group. Among those males whose longest job was not their first, a significant difference emerged. However, this difference can be attributed to a very small work study group; relative to the number of brackets, such a small group is highly susceptible to the effects of random disturbances as opposed to actual relational differences. When the classification was re-evaluated without this work study group, no significant differences appeared. Among those males with different current employment, the distribution of more recent wages of the co-op, work study, and comparison groups were not significantly different from one another.

The differences among the current and final wages of the first jobs of the co-op and nonco-op females were significantly different. Close examination of such differences revealed a trend for co-op females to earn relatively higher final wages. Although this pattern did not hold for the final wage of the longest job, it did apply to the distribution of all current salaries. In the latter case, however, this trend can be attributed to the "carry-over" effects of those females whose current job was the same as their first. When wages of "job change" groups were examined, no significant differences were uncovered on either count.

Thus, on the basis of an examination, both starting and leaving wages of the first, longest, and current jobs of males and females, no evidence can be found to substantiate the claim that cooperative education programs will result in higher wages for their participants; at best, a slight, short-term benefit may accrue to some.

As an alternate test of the same proposition, single equation regressions were computed. These are contained in Appendix B.

Job Satisfaction

Controlling for sex, the former students' overall job satisfaction (rated on a scale of 1 - 4) was cross-tabulated against the co-op/work study/comparison classification for their first, longest, and current employment. Approximately three-fourths of the male students in each category expressed satisfaction with their jobs; the slight differences shown in Table 4-7 are not significant. In a parallel evaluation, slightly different results were obtained for females. As with males, no significant variation in satisfaction with first jobs emerged. Further testing revealed no significant differences in satisfaction with jobs among those whose longest jobs were different from their first, though the trend was the same as that for first jobs--most of the students were satisfied. However, among females with different current jobs, work study students were significantly less satisfied with their employment. Such a differential could explain the satisfactional variance among all current jobs. In the work study group, only 67 percent of the students expressed satisfaction; in the co-op and comparison categories, 89 to 90 percent were generally happy with their jobs.

Thus, cooperative students do not seem to enjoy any unambigous benefits that affect job satisfaction. Chi-square analysis (a statistical method for comparing characteristics across groups) yielded neither repeated significance nor insignificance.

Skill Levels

The skill level required to perform a job can be considered a crude proxy for the challenge and responsibility inherent in the position. Among both males and females, proportionately more cooperative students held initial positions which required some special skill. In examining skill levels required of male and female graduates whose longest or current jobs were different from their first, however, no significant differences were found (see Table 4-8). Thus, the enhanced job skill level derived from cooperative education is short-term in nature; beyond the first job, no additional advantage accrues to the former co-op student.

Job Stability

To approximate the degree of job stability that was gained as a result of cooperative education, one can simply look at the number of students who changed jobs relative to the entire group. The former work experience student appears to have somewhat more job stability. Whereas 58.5 percent of the male co-op group were still at their first job, 55.4 percent of the work study and 48.3 percent of the comparison group remained at theirs. Similarly, 27 percent of all male co-op students said that their longest job was different from their first,

TABLE 4-7

Former Students' Ratings of Job Satisfaction
by Sex and Work Status

	Females			Males		
	Comparison	Work Study	Co-op	Comparison	Work Study	Co-op
First Job						
Not satisfied with job	82 (23.0%)	25 (26.3%)	100 (20.0%)	78 (27.1%)	38 (27.1")	66 (22.2%)
Satisfied with job	275 (77.0%)	70 (73.7%)	402 (80.0%)	210 (72.9%)	102 (72.9%)	231 (77.8%)
TOTAL	357	95	502	288	140	297
Longest Job						
Not satisfied with job	68 (19.1%)	21 (22.6%)	76 (15.2%)	68 (23.6%)	33 (23.6%)	61 (20.9%)
Satisfied with job	288 (80.9%)	72 (77.4%)	425 (84.8%)	220 (76.4%)	107 (76.4%)	231 (79.1%)
TOTAL	356	93	501	288	140	292
Different Longest Job (Only)						
Not satisfied with job	6 (10.7%)	3 (18.7%)	7 (11.0%)	14 (20.0%)	1 (7.2%)	13 (29.5%)
Satisfied with job	50 (89.3%)	13 (81.3%)	57 (89.0%)	56 (80.0%)	13 (92.8%)	31 (70.5%)
TOTAL	56	16	64	70	14	44
Current Job						
Not satisfied with job	61 (17.0%)	25 (26.3%)	63 (12.6%)	60 (19.9%)	30 (21.1%)	57 (19.6%)
Satisfied with job	298 (83.0%)	70 (73.7%)	437 (87.4%)	227 (80.1%)	112 (78.9%)	235 (80.4%)
TOTAL	359	95	500	287	142	292
Different Current Job (Only)						
Not satisfied with job	7 (10.9%)	9 (33.4%)	11 (10.3%)	12 (18.7%)	6 (17.7%)	13 (17.5%)
Satisfied with job	57 (89.1%)	18 (66.6%)	96 (89.7%)	52 (81.3%)	28 (82.3%)	45 (82.5%)
TOTAL	64	27	107	64	34	58

TABLE 4-8

Job Skills of Former Students by Sex and Work Status

	Females			Males		
	Comparison	Work Study	Co-op	Comparison	Work Study	Co-op
First Job						
Does not require specialized skills	21 (5.8%)	9 (90.4%)	14 (2.7%)	69 (25.8%)	29 (20.6%)	38 (13.4%)
Does require specialized skills	342 (94.2%)	87 (90.6%)	497 (97.3%)	209 (74.2%)	112 (79.4%)	246 (86.6%)
TOTAL	363	96	511	278	141	284
Longest Job						
Does not require specialized skills	21 (5.8%)	9 (9.5%)	14 (2.7%)	64 (23.0%)	29 (21.0%)	34 (18.8%)
Does require specialized skills	343 (94.2%)	86 (90.5%)	497 (97.3%)	214 (77.0%)	109 (79.0%)	147 (81.2%)
TOTAL	364	95	511	278	138	181
Different Longest Job (Only)						
Does not require specialized skills	3 (5.4%)	2 (11.8%)	5 (7.6%)	16 (23.9%)	2 (14.3%)	7 (15.2%)
Does require specialized skills	53 (94.6%)	15 (88.2%)	61 (92.4%)	51 (76.1%)	12 (85.7%)	39 (84.8%)
TOTAL	56	17	66	67	14	46
Current Job						
Does not require specialized skills	22 (6.3%)	10 (10.6%)	17 (3.4%)	52 (18.6%)	26 (19.3%)	33 (11.8%)
Does require specialized skills	330 (93.7%)	84 (89.4%)	491 (96.6%)	227 (81.4%)	109 (80.7%)	247 (88.2%)
TOTAL	352	94	508	279	135	280
Different Current Job (Only)						
Does not require specialized skills	2 (3.2%)	3 (11.5%)	6 (5.6%)	8 (12.3%)	6 (20.0%)	8 (14.0%)
Does require specialized skills	59 (96.7%)	23 (88.5%)	101 (94.4%)	57 (87.7%)	24 (80.0%)	49 (86.0%)
TOTAL	61	26	107	65	30	57

as compared to 25.9 percent of work study graduates and 41.3 percent of comparison graduates. A statistically equivalent proportion (44-54 percent) of females in all three classifications were still working at their first jobs; however, 67.9 percent of all co-op females reported their longest jobs to be their first, while approximately 48 percent of the work-study and comparison groups reported similar status (Table 4-9). Thus, all co-op students and male work study students tended to have greater short-run job stability than their comparison group counterparts.

To summarize the evidence thus far, there is no conclusive proof that high school graduates obtain better jobs (as evidenced by employment benefits) as a result of participation in cooperative education programs. At best, they may receive slightly higher wages or more job stability in the short run than nonco-op graduates.

Co-ops and Unemployment

Is the co-op student more "employable" than the nonco-op graduate? As a first check, the amount of unemployment former students had experienced since graduation was examined. A significantly higher proportion of both female and male co-op students had never been unemployed (Table 4-10). Among students who had been unemployed for any length of time, the greatest discrepancy appears in the one-to-four-month category--a higher proportion of the comparison group had been unemployed for that length of time. Among students who were unemployed for more than four months, unemployment was comparable across the three groups.

When the current work status of the students was examined, no significant difference existed in the relative proportions of males who were unemployed for each classification. Among females, there was no difference between the unemployment levels of the co-op and comparison groups, but work study females had a higher level of unemployment.

Co-ops appeared to be more fully employed overall, but current unemployment rates did not differ significantly. It is possible that most of the unemployment occurred immediately following graduation. When one considers that approximately 60 percent of the co-op students remained with their high school employers after graduation and that about 40 percent of all co-op students were still with those same employers at the time they completed the questionnaires, whereas virtually none of the comparison group remained with their high school employers, such an explanation seems plausible (Table 4-11).

There is, however, another reasonable explanation for the difference in unemployment--the implicit assumption is that co-op and nonco-op students have similar access to job information. This assumption may

TABLE 4-9

Job Continuity of Former Students by Sex and Work Status

	Females			Males		
	Comparison	Work Study	Co-op	Comparison	Work Study	Co-op
Longest job different from first job	220 (41.4%)	58 (41.8%)	213 (32.1%)	160 (41.3%)	46 (25.9%)	94 (27.0%)
Longest job same as first job	311 (48.6%)	81 (48.2%)	45 (67.9%)	227 (48.7%)	131 (74.1%)	253 (73.0%)
TOTAL	531	139	664	387	177	347
Current job different from first and longest job	225 (42.4%)	67 (48.2%)	256 (38.6%)	157 (40.6%)	65 (36.7%)	105 (30.3%)
Current job same as first job	261 (49.1%)	61 (43.9%)	356 (53.6%)	187 (48.3%)	98 (55.4%)	203 (58.5%)
Current job same as longest job	45 (8.5%)	11 (7.9%)	52 (7.8%)	43 (11.1%)	14 (7.9%)	39 (11.2%)
TOTAL	531	139	664	387	177	347

TABLE 4-10

Unemployment of Former Students by Sex and Work Status

	Females			Males		
	Comparison	Work Study	Co-op	Comparison	Work Study	Co-op
Have never been unemployed since graduation	382 (71.9%)	106 (76.3%)	522 (78.6%)	288 (74.4%)	139 (78.5%)	280 (80.7%)
Have been unemployed at some time since graduation	149 (28.1%)	33 (23.7%)	142 (21.4%)	99 (25.6%)	38 (21.5%)	67 (19.3%)
TOTAL	531	139	664	387	177	347
Currently Unemployed	40/526 (7.6%)	20/138 (14.5%)	39/661 (5.9%)	21/380 (5.5%)	6/176 (3.4%)	15/346 (4.3%)

TABLE 4-11

Former Students' Continuance with High School Employers by Sex and Work Status

	Females			Males		
	Comparison	Work Study	Co-op	Comparison	Work Study	Co-op
Stayed with high school employer after graduation	2/163 1.2%	72/139 51.8%	384/661 58.1%	0/126 0.0%	100/176 56.8%	208/346 60.1%
Currently with high school employer	0/162 0.0%	22/84 26.2%	181/448 40.4%	0/126 0.0%	45/110 40.9%	106/264 40.2%

not be correct. The probability curves in Figure 1 at the beginning of this chapter indicate the probability of an applicant's being hired for a job once the interview is obtained. It is reasonable to assume that the cooperative programs serve a job placement function and thus increase the co-ops' access to information on suitable, available jobs.

Unfortunately, the data set provides no information that would enable a test for this distinction. The results of such a test, however, would have critical policy implications. If, indeed, the placement function is the most effective aspect of the cooperative program, perhaps the same results could be obtained for all students by a simple placement service.

Although co-op students did not appear to obtain higher wages, they did seem to encounter less unemployment than nonco-op students. This benefit appeared to be primarily short-term in nature, and cannot definitely be attributed to either the co-ops' additional skills or their increased access to job information as a result of the programs' placement function.

Individual Costs of the Co-op Advantage

The last question to be considered is the possibility of short-term costs associated with the gains just described. Do co-op students sacrifice anything in order to gain future advantages in the labor market? If so, these costs must be weighed when assessing the benefits of cooperative education.

It is possible that the co-op student sacrifices current wages in order to gain the ability to earn higher future wages. The evidence concerning this hypothesis is mixed. Chi-square analyses revealed no significant differences for male students in either starting or current salaries of current students among the part-time, work study, and co-op classifications. For females, the analysis does indicate some disparities, but these are due primarily to the fact that the comparison students are disproportionately represented among those who earned wages under $1/hour and those who did volunteer work.

Total earnings of all students were examined. Since these earnings were affected by both the wage rate and tenure in the labor market, no concrete evidence could be obtained. However, when considered in conjunction with the data on hours per week, weeks worked, and wage rates, some general indication of confirmation or contradiction of the assumption that total earnings of co-ops would be greater was obtained.

Because the co-op students worked longer and, with some minor exceptions, because wage rates were comparable across the three categories, one would expect that total earnings are greater among the co-ops. This proved to be the case for both males and females. A disproportionate number of part-time workers were represented in the lower total earnings categories ($500 or less). Among females only, the higher total earnings brackets (over ($1,300) included a greater proportion of co-ops.

Another possible trade-off between costs and benefits might be seen in comparisons of the wages of student workers and full-time employees. If more of the co-ops earned less than full-time employees and/or more of the comparison group earned higher wages, it would seem that the co-ops have made a trade-off for their additional experience. While a majority of both males and females who were able to make such a comparison reported that their wages were lower than those of regular employees, the proportions of co-op, work study, and part-time students that fall into this category were approximately the same for each group.

It seems reasonable to say, then, that the majority of co-op students earned wages comparable to those of work-study and part-time employees. One can conclude, therefore, that no appreciable costs are borne by co-ops in wages lost.

As a countercheck on the wage results, regressions were computed. These results can be found in Appendix B.

Job Satisfaction

One other area of possible costs is that of job satisfaction. If the co-ops were less pleased with their jobs, then they probably made some sacrifice in order to acquire additional experience. The results of analyses of reported job satisfaction indicate that job satisfaction does not differ significantly among the three groups of males. Among females, however, co-op students tend to be slightly more satisfied with their jobs than the comparison group.

This is not to say that no trade-offs are made, or that the trade-offs made by each group are the same. Job satisfaction is a multi-dimensional concept which may differ for each group, with the various plus and minus effects cancelling out in the aggregate indication. Differences in job expectations may also conceal possible employment-related costs to co-ops or nonco-ops. The co-ops may place a different value on the various components that overall satisfaction comprises; thus, comparable measures may occur in the face of different job conditions.

It can be said, however, that co-ops incur no employment-related costs while acquiring the skills and experiences which help them to secure jobs after graduation. As mentioned earlier, the co-op student exchanges other activities for work, and thus may incur costs in nonemployment areas. The examination of nonemployment costs that is presented in Chapter 7, however, indicates that co-ops are not limited in this area.

Summary

Various effects that participation in cooperative education programs may have on post-graduation employment experiences have been explored. Within the context of an economic job search framework, three hypotheses were formulated:

1. Cooperative education enhances marketable job skills.

2. Co-op students can acquire better jobs.

3. Co-op students can find jobs within a shorter period of time than nonco-ops.

Most of the evidence strongly supports the claim that co-ops have more marketable skills. It appears, too, that they are somewhat more likely to find suitable jobs in less time than other graduates, but they do not obtain better jobs than other students, at least in terms of wages. (They probably do, however, receive more on-the-job training.) Co-ops also experience somewhat lower levels of unemployment than nonco-ops, but this unemployment difference might be attributed to the placement function of cooperative education rather than to any added skills it may provide. Finally, the co-op students do not seem to suffer any employment-related costs while gaining additional experience. The following chapter identifies the monetary returns to work experienceen vocational education.

CHAPTER 5

MONETARY RETURNS TO WORK EXPERIENCE VOCATIONAL EDUCATION

Introduction

Monetary costs and benefits, especially net marginal costs and net marginal benefits, are important aspects of comparisons made to determine the relative cost effectiveness of work experience vocational education vs. regular vocational education. Marginal costs (or benefits) are the addition to the total costs (or benefits) associated with adding one student to a program. The term "net" is used to refer to the difference in marginal costs and benefits between work experience and regular vocational education. The underlying assumption is that if work experience programs were not expanded (or available), then alternative programs would be--in this case the alternative is regular vocational education. Costs and benefits attributable to work experience should therefore not include those which would also occur under alternative programs, but only those which occur specifically as a result of work experience programs and which could not be attributed to alternatives.*

The question for many vocational school administrators is: should additional students be encouraged to enter work experience vocational programs as an alternative to regular vocational programs? What extra costs and benefits, if any, are associated with incremental expansion of work experience programs? Estimates of net marginal costs and benefits can assist in the decision-making process.

The monetary returns to an investment in work experience are estimated by using information on net marginal costs and benefits. The costs are measurable school costs and the benefits are measurable benefits that accrue to students (or, in later chapters, those that can be inferred to accrue from proxy indexes). This investment approach can be useful when applied to educational programs, but a number of reservations are noted below, and caution is advised in interpreting the empirical results.

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[1] Chapters 3 and 5 in Part III analyze the monetary costs and benefits associated with work experience programs. In these chapters, cost and benefit data on work study and cooperative programs have, of necessity, been combined, although most of the nonmonetary benefit which were found to be associated with work experience programs (see Chapters 4, 6, 7, and 8) apply most strongly to cooperative programs and less so to work study programs.

Assumptions and Reservations

Certain assumptions underlie all of the methods used in this chapter for estimating the desirability of expanding work experience programs in vocational education which give rise to reservations about the use of these approaches. First, in order to discount future benefits, a somewhat arbitrary market rate of interest must be selected, a choice which unavoidably influences the result. Another assumption is that the rate of interest selected is constant in all time periods considered. An additional assumption, noted earlier, is that if investment was not made in work experience programs, it would be made in regular vocational programs. This is perhaps a reasonable assumption, but it may not truly reflect the competition for educational resource dollars. Moreover, it is assumed (perhaps heroically) that students who enter the two alternative vocational education options are the same in terms of prior schooling, skills development, and ability--that they have the same endowments prior to selecting either work experience or nonwork experience vocational training. Differences in labor market outcomes (benefits) observed in favor of work experience graduates are therefore assumed to be related to skills learned in such programs.

Pecuniary measures do not fully capture the possible returns to any educational program. In fact, in important respects, education might be considered as consumption rather than investment, in which case satisfaction is an important variable in assessing its value. Furthermore, between programs, certain differences in socialization benefits (or costs), such as dropout prevention, are not adequately identified. Even in the context of monetary returns, the measures used are imperfect. Many private and social monetary costs and benefits are not identified and measured in the above approaches. For example, costs and benefits that accrue to employers and the multiplier effects of these are ignored; if these are significant, they represent both private and social costs and benefits which should enter a truly complete analysis. Many of these factors, however, cannot be quantified. Another limitation of employing the monetary-based measures discussed above is the short time period used to survey benefits. Observations were made on costs incurred over one year and benefits over only a two year period after the students were graduated. Outcomes viewed over a longer period of time would clearly yield more complete information. The result of this short range view of benefits may be an understatement of the true benefits of work experience education.

The assumptions and reservations noted above apply to all studies of this type. They illustrate that measures of monetary returns can only be indicative of the desirability of work experience vocational programs. However, pecuniary-based measures do provide useful complementary information for the decision maker. In the final analysis, administrators must assemble assorted, incomplete, and often contradictory information; considered judgment can often make the difference between good and bad decisions.

Investment Return Measures

Keeping in mind the reservations noted above, a number of approaches can be employed to evaluate the investment return to work experience vocational education. In this study, three alternative measures are considered:

1. A benefit/cost ratio, based on discounted marginal benefit differences between work and nonwork experience programs and discounted marginal cost differences between programs. (Discounting is performed to account for the difference in the value of the dollar based on a rate of interest over the two-year period during which benefits were observed.)

2. A net present value criterion based on marginal benefit and cost differences between programs. (Net present value is discounted value.)

3. An internal rate of return approach based on differences in marginal benefits and costs between programs.

The benefit/cost ratio criterion is illustrated in Equation (1) below, where B_{wt} is the marginal benefits of work experience in period t and B_{Nwt} is the marginal benefit of nonwork experience programs in period t. C_{wt} is the marginal cost of work experience programs in period t, while C_{Nwt} is the corresponding cost for nonwork experience; i is the market rate of interest used for discounting. The ratio b/c is the benefit/cost ratio.

$$(1) \quad \frac{\sum_{t=1}^{n} \frac{B_{wt} - B_{Nwt}}{(1+i)^t}}{\sum_{t=1}^{n} \frac{C_{wt} - C_{Nwt}}{(1+i)^t}} = \frac{b}{c}$$

The decision rule in this case is that if the ratio of the sum of net discounted marginal benefits to the sum of net discounted marginal costs exceeds unity, then additional funds are warranted for work experience programs.

The second approach is to calculate the net present value of an investment in work experience programs based on net marginal costs and benefits. The net present value (NPV) formula is given in equation (2) below, where NB_t is the marginal benefit to work experience in period t, and NC_t is the net marginal cost of work experience in period t.

$$(2) \quad NPV = \sum_{t=1}^{n} \frac{NB_t - NC_t}{(1+i)^t}$$

This investment criterion provides an estimate of the net present value of the marginal investment expenditure associated with adding one student to a work experience program instead of to a regular vocational program. Assuming only two program alternatives, if NPV > 0, this implies that the choice to expand work experience (rather than nonwork experience) programs is correct.

The third approach is to calculate the internal rate of return on the marginal investment in work experience. The internal rate of return is defined as that rate of interest which makes the net present value of equation (2) equal to zero. Assuming that only the two program investment alternatives are available, a positive internal rate of return indicates that work experience programs, rather than nonwork experience programs, are the correct choice for expansion.

Empirical Estimates

A net marginal cost of $125 was estimated to be associated with work experience vocational education in Chapter 3. That is, if a student is added to the work experience program instead of to the regular vocational program, the incremental cost is $125. The cost data refer to the school year 1974-75.

Benefit differences between work experience and regular vocational education analyzed in Chapter 4 identify a number of apparent benefits in favor of the former. For example, work experience graduates acquired more skills on their first jobs after graduation. Their first jobs were more directly related to their areas of study. Work experience graduates reported more often that their course work prepared them for their jobs than did regular vocational program graduates. Work experience graduates had less frequent unemployment in the first two years after graduation than did regular program graduates, although once unemployed, the duration of joblessness did not differ. (These differences apply mainly to co-ops.)

These benefit differences suggest that work experience graduates' skills are better matched to skills required at job entry. If this is so, it is somewhat surprising that no significant difference obtains between the wages of work experience and nonwork experience graduates.[2] The better the match between skills acquired and skills required, other factors the same, the higher a worker's marginal productivity should be. If marginal product and wage are related, as economic theory suggests, *a priori* one would expect a wage differential in favor of work experience graduates. One possible explanation for the absence of the expected wage differential is that employers of work experience graduates reap the extra benefits of work experience education instead of the graduates themselves. This contention finds support in the responses of employers to questionnaires about their experiences with student employees, the results of which are reported in Chapter 8. It is also possible that work experience graduates enjoy nonmonetary gains that the control group does not. Or it may be that work experience graduates are, in fact, no more productive than regular vocational graduates, in which case no wage differential would be expected.

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[2] The wages of co-op students in school-supervised jobs were not significantly different from regular students who also worked part-time, therefore, no wage benefit was observed in favor of co-op students prior to graduation, or during the two-year period following graduation.

Given the available benefit information, only one benefit difference can be translated into a monetary equivalent. Although wage rates do not appear to differ, work experience graduates do have less frequent unemployment during the first two years after graduation, and unemployment represents lost earnings.[3]

Unemployment differences may reflect the more difficult adjustment to the labor market that nonwork experience graduates must make to match their skills with job requirements. It is well known that young people "job shop" early in their work lives, thereby gaining valuable information about the labor market.[4] This phenomenon may be viewed as a job search investment. Work experience graduates may be exposed to more labor market information of this sort prior to graduation than other students. If this is so, then work experience graduates may have fewer initial adjustments to make in the labor market. This view is supported by the finding of the present study that over one-half of work experience graduates continued to work for the employer who provided their school-supervised job experience.

The difference in unemployment between work experience and nonwork experience graduates is not large, but the reduced risk of unemployment can be considered as a benefit to work experience graduates which is quantifiable in monetary terms.

The sample of former students indicates that the average work experience graduate had been out of school for 19.7 months and had been unemployed for 1.09 months.[5] The respective figures for nonwork experience students are 21.3 months and 1.36 months. If these unemployment figures are adjusted to a twelve months equivalent, work experience graduates can expect to be unemployed for .66 months per year for the first two years after graduation. The estimate for nonwork experience students is .77 months, or about one-tenth (.11) of a month more unemployment per year, over the two years after graduation, than work experience graduates encounter. At $2.50 per hour (assuming a forty-hour work week and a four-week month), the net benefit in favor of work experience graduates is $44 per year for the two-year period considered.[6] This average figure of $44 is used as a proxy for net marginal benefit. If it is assumed that all of the difference in unemployment occurs immediately after graduation, or in the first year out of school, the benefit in favor of work experience graduates is $100.[7]

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[3] Viewed as a social cost, unemployment compensation does not reduce this cost.

[4] Herbert S. Parnes, "Labor Force Participation and Labor Mobility," Industrial Relations Research Association, Research Volume 1, 1970, p. 45.

[5] "Unemployed" is defined as not working, but seeking and available for work. In essence, this is the same definition used by the Bureau of Labor Statistics. It should also be noted that the unemployment figure is an average based on those who reported unemployment and those who did not. In effect, the estimate is an expected duration of unemployment for the entire cohort.

In the calculations below, we assume that the benefits that result from less unemployment accrue to work experience students over the two-year period after graduation. The two-year labor market period observed extends from graduation in mid-1973 to mid-1975. The cost data that were collected refer to the school year 1974-75. These costs should be deflated to reflect school costs in 1972-73, when extra expenditures were made on the graduates we surveyed. The net marginal cost associated with work experience programs in 1974-75 is $125. Using a 6 percent deflation factor, the equivalent marginal cost for 1973-74 is $117.93, and for 1972-73, the deflated marginal cost is $111.25. This last estimate of marginal cost is used in the calculations below.

Given these qualifications, we can now quantify the three investment return measures discussed earlier. The first of these is the ratio of benefits to costs (b/c). This ratio is calculated in Equation (3) below, using a market rate of interest of 10 percent.

$$(3)\quad \frac{\dfrac{0}{(1+.10)^0} + \dfrac{44}{(1+.10)^1} + \dfrac{44}{(1+.10)^2}}{\dfrac{111.25}{(1+.10)^0} + \dfrac{0}{(1+.10)^1} + \dfrac{0}{(1+.10)^2}} = \frac{\$\ 76.36}{\$111.25} < 1$$

The resulting b/c ratio is less than unity, which indicates that the investment in work experience does not pay in monetary terms.

The present value calculation is provided in Equation (4)

$$(4)\quad NPV = \frac{-111.25}{(1+.10)^0} + \frac{44}{(1+.10)^1} + \frac{44}{(1+.10)^2} = -\$23.25$$

The result indicates that the present value of a marginal investment in work experience, rather than regular vocational education, for a two-year benefit stream, is -$23.25. In monetary terms, expansion of work experience programs is not cost effective over the period considered.

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[6] The $2.50 per hour wage selected is based on wage data for the whole sample of graduates. It is the mean of the average reported starting wage on first job ($2.28) and the average current wage on current job ($2.72). The .11 month figure translates into .44 of a week, or 17.6 hours lost work, assuming a forty-hour workweek. In dollar terms, the loss is (17.6) (2.50) = $44.

[7] The $100 estimate is arrived at as follows. Work experience graduates have an average 1.09 months of unemployment; for nonwork experience graduates the figure is 1.36 months. The difference, then, is .25 months, or one week. Given a forty-hour workweek, at $2.50/hour, this represents a benefit in favor of work experience graduates of $100 in the first year after graduation.

Since the net present value is negative, the internal rate of return on an additional investment in work experience education will also be negative. Recall that the internal rate of return is that rate of interest which makes net present value equal to zero. Equation (5) shows the internal rate of return which makes NPV approach zero.

$$(5) \quad 0 \approx \frac{-111.25}{(1-.15)^{0}} + \frac{44}{(1-.14)^{1}} + \frac{44}{(1-.14)^{2}}$$

The internal rate of return associated with the marginal investment in work experience is -14 percent. If we assume that all the extra benefits which accrue to work experience students occur in the first year after graduation, the net present value remains negative (111.25 - 90.90 = $-20.35), but less so. On this basis, the internal rate of return is -10 percent.

Implications

Speaking strictly in monetary terms, and considering only school costs and gross earnings (benefits) of graduates, work experience education does not provide a positive net return during the first two years after graduation. One major function of the cooperative program is job placement, which may provide work experience students with an advantage at labor market entry through early exposure to jobs in their areas of study. As noted above, over one-half of work experience graduates remain with their school employers after graduation, while other graduates may be seeking work for the first time. Work experience graduates thus appear to do less "job shopping" than nonwork experience graduates.

The empirical results indicate that work experience graduates do not earn more than nonwork experience graduates. This factor is largely responsible for the negative rate of return. A number of possible explanations can be given for these pessimistic results.

First, during the period in question (1973-1975), overall unemployment was not only high, but rising. Teenage unemployment, which is normally well above the average, rose from about 14 percent in 1973 to about 20 percent in 1976.[8] Under these conditions, employers could readily find applicants for job vacancies without having to resort to bidding up wages, although they may have bid up hiring standards. Even if work experience graduates had some skill advantage over other graduates, employers may not have needed to pay a premium to obtain the better applicants in an excess-supply labor market. Under these conditions, employers may reap the benefit of any skill advantage that work experience graduates possess. If this is what actually transpired, the monetary return to work experience measured above is biased downward, since no explicit account is taken of benefits to employers. (The findings reported in Chapter 8 lend tentative support to this hypothesis.)

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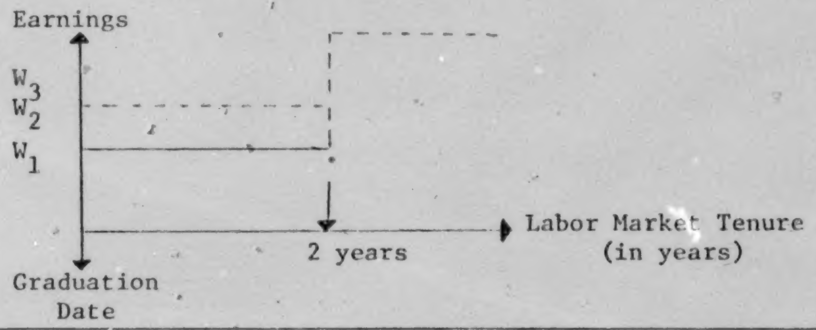
[8] United States Department of Labor, Bureau of Labor Statistic, *Employment and Earnings*, January 1976, p. 59.

A second labor market phenomenon may help to explain why the earnings of work experience graduates were not observed to exceed those of nonwork experience graduates. Firms may provide more general on-the-job training (OJT) to the former than to the latter immediately after graduation.[9] Work experience graduates may receive such general training early since their employers may have observed them in school-supervised jobs. Other vocational graduates may face a waiting period at job entry--a screening device used by employers to identify the more committed workers. Some of the skills imparted through OJT can be readily transferred by employees to other employers. When employers provide general on-the-job training, employees often pay for it in reduced wages, since the employer has no guarantee that he will receive a return on his investment in the employee, but the employee may gain increased future access to the preferred, primary labor market jobs as a result. (The primary labor market contains the stable jobs with benefits and opportunities for advancement, as opposed to the secondary labor market, which contains the marginal, dead-end type jobs that are usually held by youths, the unskilled, minorities, and women. On-the-job training is said to be one prerequisite for obtaining preferred jobs.)[10]

The above speculations point to an outcome illustrated below in Figure 2.

Figure 2.
General Training and Wages



Work experience graduates are assumed to have a skill advantage over nonwork experience graduates at job entry, which would produce a wage advantage $W_2 - W_1$ in Figure 1, if neither group receives further on-the-job training (or if they receive the same amount of OJT). If, however, work experience graduates receive general on-the-job training during the first year or two of work and other graduates do not (or if they receive more general OJT), they will pay for it through reduced wages during the period of training. The effect would be to move W_2 towards W_1 during the training period.

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[9] General training is defined here as on-the-job training which can be readily applied by the employee outside the firm which provides it. Specific training is not applicable outside the firm which provides it. See Gary S. Becker, Human Capital, New York: National Bureau of Economic Research, 1964, pp. 8-28.

[10] Peter B. Doeringer and Michael J. Piore, "Unemployment and the 'Dual Labor Market'," Public Interest, Winter 1975, pp. 71-72.

The important point is that the initial wages of the two groups may not be different, even if work experience students are more skilled at post-graduation job entry. They may pay for additional training that other graduates receive later. Figure 1 shows that if this training were to last two years, work experience graduates' earnings would increase from W_1 to W_3. A positive wage differential would then be observed between work experience graduates and regular vocational education graduates. Wages (W_3) would reflect both the additional post-graduate OJT training that work experience graduates have received, as well as any prior skill advantage carried over from their formal schooling. If the above phenomenon occurs, the monetary returns to work experience education indicated here are biased downward. The fact that work experience graduates work at jobs that require greater skills than do nonwork experience graduates (see Chapter 4) indicates that they may receive more general OJT.

In addition to those factors which might lead to a downward bias in the monetary return estimates, it should be reemphasized that the calculated monetary benefits tell only part of the story. If benefits extend beyond a two-year period, then the true benefits that accrue to work experience students have been understated here. Other benefits to work experience students are discussed in Chapters 4, 6, and 7. Only school costs and gross student earnings (benefits) were considered in our estimates.

Summary

Several methods for evaluating the monetary returns to investment in work experience programs have been outlined. The empirical estimates which result from employment of these investment return measures indicate that from a strictly monetary point of view, ignoring individual and social benefits that have not been quantified, investment in work experience, rather than nonwork experience vocational programs, is not justified. The cost of adding one student to a work experience program (as estimated in Chapter 3) is $125. Because work experience graduates were not found to earn higher post-graduation wages than other students, the added expenditure for their education does not pay off, even when accounting for their somewhat lowered rate of unemployment. However, this analysis has not attempted to quantify the value of such factors as greater job satisfaction, lowered dropout rates, and more on-the-job training among work experience students.

PART IV
EFFECTS ON PERSONAL DEVELOPMENT, EDUCATION, AND EMPLOYMENT

CHAPTER 6

THE EFFECTS OF WORK EXPERIENCE ON CAREER DEVELOPMENT

Introduction

The advocates of work experience programs, particularly cooperative education programs, claim that many benefits arise from them. Chief among these is the quality of training that can be provided in an actual work environment. The claims go beyond these, however, to include assisting in the personal development of the student, increasing the relevance of education, improving faculty-student relations, and encouraging better school attendance.[1] The discussions in this and the following chapter examine the data collected in this study that are relevant to these claims, and in general, find that these data support them. For the most part, the differences among the groups of students in cooperative, work study, and comparison groups are not large. Where differences were found, however, they usually showed that the students with school-supervised jobs (co-op and work study) have benefited more than the students in the other groups.

Despite the problems encountered in attempting to define the groups that were discussed in the Chapter 2, and despite the inherent lack of precision in the measures used, the overall conclusion about work experience programs must be positive. It is highly likely that if more precise measures were possible, the benefits which were found to derive from school-supervised work experience would be even greater.

Career Development and Planning

Virtually all theories of career development recognize that young people need a period of occupational exploration before they can make realistic career decisions.[2] Actual work experience is needed to test personal preferences and interests against the reality of occupational demands. Many changes in our society (such as prolonged periods of formal education and child labor laws) have made it more difficult for young people to acquire such experience. Recently, public education has begun to attempt to provide occupationally oriented learning experiences designed to facilitate the vocational development of students. This concept is at the core of the career education emphasis of the U.S. Office of Education.

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[1] Roy L. Butler and Edwin G. York, What School Administrators Should Know About Cooperative Education, ERIC Clearinghouse on Vocational and Technical Education, Information Series #37, VT012-906, (Columbus, Ohio, The Ohio State University, 1971), pp. 4-5.

[2] For extensive discussions of the various theories of career development, see S. H. Osipow, Theories of Career Development (New York: Appleton-Century-Crofts, 1968), and John O. Crites, Vocational Psychology (New York: McGraw Hill, 1969).

In this chapter, some aspects of the career development of current and former students are examined based on data obtained from questionnaires. The data are of five types: (1) the students' recall of exposure to potential influences on their choice of courses of study; (2) the reasons students gave for their choices; (3) the relationships between occupational areas studied and jobs held while in school and after being graduated; (4) post high school plans and experiences, including participation in additional educational and training programs; and (5) a measure of students' knowledge about different types of jobs. Although the differences among the groups are not striking, overall they suggest that work experience in school facilitates occupational exploration and probably results in more informed career decisions.

Potential Influences on Choice of Course of Study

Many different experiences can influence the choice of a course of study. These range from informal conversations with peers to highly structured courses about careers to computer-assisted guidance. To assess the impact of exposure to such experiences as the current students remembered them, they were presented with a list of twelve potential influences on their choices and were asked to indicate whether or not they had ever had such experiences. Students then rated those experiences which they indicated having had on a five-point rating scale ranging from "not at all helpful" to "very helpful." The percentages who reported having each of the experiences are shown in Table 6-1. Those who reported the experiences were used to calculate the percentages who rated the experiences quite or very helpful. These percentages are shown in Table 6-2.

The percentages in Tables 6-1 and 6-2 are based on recall and are therefore subject to all of the distortions to which memory is prone. No claim is made that these figures represent the actual number of students who had these experiences. What the figures probably do reflect is the saliency of the experiences. It seems likely that those experiences which had the most impact are the ones that were recalled and reported. Having stated this, however, it should be noted that the rank order of the percentages that reported the experiences is not the same as the rank order of the percentages that rated the experiences as quite helpful or very helpful. In fact, there are major reversals: the experience ranked first in Table 6-1 is ranked next to last in Table 6-2; the experience that ranks tenth in Table 6-1 ranks first in Table 6-2. Reporting having had an experience is not the same as considering it quite or very helpful.

TABLE 6-1

Reported Participation in Experiences which Influenced Choice of High School Courses, Current Students by Sex and Work Status

Influential Experiences	Males				Females			
	Co-op	Work Study	Part-Time	No Job	Co-op	Work Study	Part-Time	No Job
	%	%	%	%	%	%	%	%
a. Took career course about variety of occupations	60[a]	53	34	36	60[a]	56	41	41
b. Took vocational interest test	45	57	46	41	41	40	41	44
c. Took vocational aptitude test	44	50	42	38	44	39	40	41
d. Read occupational information material	71	65	65	67	79	77	76	70
e. School programs or activities describing different courses	61	66	64	65	75	70	68	70
f. Discussed course choice with other students	82	74	80	79	94	90	91	88
g. Discussed course choice with parents	72	73	72	79	93	91	92	91
h. Discussed course choice with brothers, sisters, relatives	67	57	62	58	77	74	72	74
i. Discussed course choice with teachers	63	60	59	49	72[a]	68	62	64
j. Dircussed course choice with guidance counselor	68	63	63	69	68	65	63	70
k. Held a part-time or summer job that influenced choice	64[a]	65	55	40	68[a]	60	51	30
l. Hobbies or leisure time activities that influenced choice	56[a]	52	64	62	46	44	45	52
Range of base numbers[b]	278-282	139-141	466-472	247-250	573-587	125-130	566-572	396-405

[a] Difference among groups of the same sex significant at the .05 level or less.

[b] Base numbers on which percentages are calculated vary because of missing observations.

TABLE 6-2

Percentages of Current Students that Rated Experiences which Influenced Choice of High School Courses as Quite or Very Helpful, by Sex and Work Status

Influential Experiences	Males				Females			
	Co-op	Work Study	Part-Time	No Job	Co-op	Work Study	Part-Time	No Job
	%	%	%	%	%	%	%	%
a. Took career course about variety of occupations	55	55	49	43	69[a]	66	53	56
b. Took vocational interest test	44	44	40	37	51[a]	42	31	43
c. Took vocational aptitude test	48	46	45	39	45	35	36	40
d. Read occupational information material	40	47	45	48	53	59	50	51
e. School program or activities describing different courses	44	49	43	42	59[a]	53	46	45
f. Discussed course choice with other students	41	33	42	35	47	51	44	45
g. Discussed course choice with parents	57	50	59	55	67	57	66	65
h. Discussed course choice with brother, sister, relatives	54	51	48	46	56[a]	56	62	50
i. Discussed course choice with teachers	56	51	50	51	64[a]	70	56	62
j. Discussed course choice with guidance counselor	46[a]	62	55	57	61[a]	79	57	59
k. Part-time or summer job	66	57	64	54	81	77	74	72
l. Hobbies or leisure time activities	67[a]	78	73	62	69	73	73	66
Range of base numbers[b]	123-232	69-117	160-382	91-196	237-548	51-117	226-524	120-366

[a] Differences among groups of the same sex significant at .05 level or less.

[b] Base numbers for percentages include only those respondents who reported having the experience listed.

For most of the twelve experiences listed in the questionnaire, half or more of the respondents reported having taken part in them. Of those who reported the experiences, half or more usually rated them as quite or very helpful. Hobbies/leisure time activities and part-time or summer jobs were clearly perceived as the most helpful experiences. Where significant differences were found among the groups, they usually show that the cooperative and work study students were more likely to have had the experiences and to have found them helpful than were the part-time and no job groups, with a few exceptions. Typically, having school-supervised jobs was associated with reporting more, and more helpful experiences of an exploratory nature. It is, of course, impossible to infer causes from these data. Do these experiences cause students to enter work experience programs, or are students who enter work experience programs simply more likely to report these experiences? For whatever reasons, the data do suggest more career awareness among the students in school-supervised jobs, and this is certainly one of the objectives of work experience programs.

Reasons for Choosing Courses

Current and former students were also asked to indicate the most important reason, from a list of nine possibilities, for choosing their courses of study. The last two choices (see Table 6-3) gave the students an opportunity to choose "other" or "undecided, don't know." Work study males, both current and former, tended to indicate these two choices more frequently than did students in other groups, which indicates that work study students are less decisive in selecting a course of study than other groups.

Contrary to a widely held belief that students select courses of study in order to be with friends, sample students reported preparation for employment or college, business school, technical school, etc., as the most important reasons for selecting their courses (see Tables 6-3 and 6-4). The cooperative students reported preparation for employment as the most important reason more often than any other group of students. This suggests that the purposes of cooperative programs and the motivations of students in those programs tend to coincide.

Former female students most frequently reported employment as the reason for selecting their courses of study, while current female students reported preparation for further education (college, business school, technical school, etc.,) as slightly more important in determining their choices. This slight difference may reflect the beginning

TABLE 6-3

Current Students' Most Important Reason for Choosing a Course of Study, by Sex and Work Status

Most Important Reason	Males				Females			
	Co-op	Work Study	Part-Time	No Job	Co-op	Work Study	Part-Time	No Job
	%	%	%	%	%	%	%	%
Prepare for employment	44	24	26	20	46	34	33	30
Study things of personal interest	17	17	22	23	15	18	18	18
Prepare for college, business school, technical school, etc.	18	20	30	30	29	31	35	35
Followed suggestion of school	6	11	5	8	1	4	4	4
To have easy courses	5	9	5	5	1	1	1	2
Obtain needed credits	4	6	2	3	2	5	2	3
To be in classes with friends	1	0	1	2	1	0	1	2
To satisfy parents	0	0	2	0	*	1	1	1
Other	2	4	2	2	2	4	1	1
Undecided, don't know main reason	4	11	7	8	4	3	4	4
Base Number	251	476	143	283	587	130	574	408

[a] Reasons given differ significantly across both male and female groups:

Male: Chi square = 86.72 $p < .001$.
Female: Chi square = 63.74 $p < .001$.

*Less than 1/2 of 1 percent.

TABLE 6-4

Former Students' Most Important Reason for Choosing High School Courses by Sex and Work Status

Most Important Reason	Males			Females		
	Co-op	Work Study	Comparison	Co-op	Work Study	Comparison
	%	%	%	%	%	%
Prepare for employment	38[a]	15	16	52	23	40
Study things of personal interest	31	24	29	16	22	16
Prepare for college, business school, technical school, etc.	17	27	33	22	30	32
Followed suggestion of school	3	8	6	3	7	3
To have easy courses	3	8	5	2	4	3
To be in classes with friends	1	2	2	1	3	2
To satisfy parents	*	2	1	1	1	*
Other	3	3	2	2	7	4
Undecided, don't know main reason	4	10	6	2	1	*
Base Number	346	176	380	664	138	523

[a] Reasons given differ significantly across both male and female groups:

Males: Chi square = 99.23 $p < .001$.
Females: Chi square = 82.08 $p < .001$.

*Less than 1/2 of 1 percent.

of a shift in course choice among females due to the recent increase in emphasis on a wider choice of life ambitions and careers for women.[3]

Relatedness of Jobs to Vocational Training

In High School

In high school, students who have engaged in a high degree of exploratory behavior prior to choosing courses of study would be expected to be more committed to their choices. Their selections should be more fully considered and based on more information than those of students who explored their choices less completely. To test for such commitment, a number of comparisons were made between the vocational courses the students were taking or had taken in high school and the kinds of jobs they had obtained or planned to obtain. To conduct these comparisons, the vocational courses and jobs were coded similarly. (The students' ratings of the relatedness of the training they received to the jobs they obtained are presented in Chapter 7.) Table 6-5 shows the general categories in the code that were used for tracing job-training relatedness.

Table 6-5 presents the actual number of cooperative male students who were taking courses in twelve vocational areas represented by the columns in the table at the time of the survey. The rows of the table classify the vocational areas of the jobs the students held. These classifications are based on the students' own reports of their courses of study and the main tasks which they performed on their jobs. The underlined numbers listed diagonally on the table represent those students whose jobs were in the same vocational areas they studied. Trade and industry is the exception because many of these students did not indicate their specific trade and industry area. Consequently, any student whose course of study was trade and industry (n.e.c.--not elsewhere classified) and whose job was in any of the trade and industry areas (any within the dotted lines) was considered to be in a related job.

Any classification scheme such as that used in Table 6-5 includes some arbitrary elements. For example, the largest numbers of students who did not have related jobs were in distributive education (DE): twenty-one DE students were in jobs classified as gainful home economics and eleven DE students were in jobs classified as automotive. Many of the twenty-one in home economics jobs worked in fast food restaurants

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[3] In _The Role of the Secondary Schools in the Preparation of Youth for Employment_ conducted by Jacob J. Kaufman, Carl J. Schaefer, Morgan V. Lewis, David W. Stevens, and Elaine W. House (Institute for Research on Human Resources, The Pennsylvania State University, 1967), females reported preparation for future employment as the most important reason for selecting their course of study four times more frequently than for any other reason. In the same study, the female respondents in the general education group were twice as likely to make their choice based on future job hopes than were male respondents in the same group. In the current study, the difference between the male and female respondents' desire for job preparation has been significantly reduced.

TABLE 6-5

In-School Jobs of Cooperative Students Classified by Vocational Education Code
by Vocational Program of Student, Males Only

Jobs Classified by Vocational Education Code	Vocational Program											
	OO	DE	HO	HEc	T & I	EA	Auto	CM	MW	Other	Tech	Ag
	N	N	N	N	N	N	N	N	N	N	N	N
Office Occupations (OO)	8	3	3	1	1	0	0	0	0	0	1	0
Distributive Education (DE)	2	84	0	2	9	2	4	0	0	0	2	0
Health Occupations (HO)	0	0	3	0	1	0	0	0	0	0	0	0
Gainful Home Economics (HEc)	1	21	0	2	7	0	3	0	1	0	0	0
Trade and Industry (n.e.c.)* (T&I)	0	1	0	0	1	1	0	0	0	0	0	0
Electrical Appliance (EA)	0	2	0	0	1	5	0	0	0	0	1	0
Automotive (Auto)	1	11	0	0	9	0	7	0	2	0	1	0
Construction-Maintenance (CM)	0	3	0	0	15	0	1	0	0	0	0	0
Metal Working (MW)	0	1	0	0	[illegible]	0	0	0	3	0	2	0
Other Specific T & I	0	2	0	0	0	0	0	0	0	2	0	0
Technical (Tech)	0	0	0	0	2	0	0	0	0	0	8	0
Agriculture (Ag)	0	5	1	0	2	0	1	0	1	0	0	0
Cannot classify, no answer on job	0	15	0	0	5	0	1	0	2	1	0	2
Total	12	148	7	5	57	8	17	0	9	3	15	2

*Not elsewhere classified.

where they obtained some distributive education experience. Similarly, the eleven classified as automotive worked in gas stations, which also gave them distributive education experience. Conversely, the number in gainful home economics was so small that no attempt was made to classify them more specifically. Thus, a student who was studying child care or interior decorating and who worked in a fast food restaurant would be classified as being in a related job.

The type of cross-classification shown in detail in Table 6-5 was the method used to generate the percentages reported in Tables 6-6, 6-7, and 6-8. Tables 6-6 and 6-7 report the percentages of current students whose in-school jobs and job plans were in the same vocational areas as their studies. Table 6-8 shows the percentages of former students whose first regular jobs after high school were in the same vocational areas as they studied.[4]

Among the current students, it is clear that cooperative school-supervised jobs were more likely to be related to courses than were nonsupervised, part-time jobs. Females were more likely than males to hold related jobs, but this reflects the heavy female enrollment in office occupations more than true sex differences across all vocational areas.

The percentages of current students who hoped to find jobs after completing their education in vocational areas the same as those they studied is low for all groups. These figures are depressed by the substantial percentages of students who answered "undecided" on their job plans. Among the males, this figure was 39 percent and among the females, 29 percent. The percentage of male co-op students who hoped to find related jobs was significantly lower than the other two groups (chi square = 11.37, $p < .01$). Among the females, the difference was in the same direction, but it did not quite reach significance.

These results do not support the hypothesis that cooperative students are more committed to the vocational areas they study. It may be that by taking cooperative jobs, these students were engaging in further exploratory behavior. A cooperative job, since it requires no long-range commitment from either the student or the employer, provides an ideal opportunity for occupational exploration. An alternative hypothesis is that many students entered cooperative programs primarily to obtain

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[4] Work study students are not included in these tables for they were defined as students in school-supervised jobs who were not studying vocational courses.

TABLE 6-6

Percentages of Current Male Students Whose In-School Jobs and Job Plans Are In Same Vocational Areas They Are Studying

Vocational Areas	Co-op			Part-time			No Job		
	Job	Plans	Base N	Job	Plans	Base N	Job	Plans	Base N
	%	%		%	%		%	%	
Office Occupations	67	17	12	10	19	21	NA	40	10
Distributive Education	57	11	148	49	9	45		12	16
Health	a	a	7	a	a	1		a	1
Gainful Home Economic	a	a	5	54	38	13		a	4
Trade and Industry	51	27	94	27	34	112		32	63
Technical	53	60	15	22	62	45		62	16
Agriculture	a	a	2	31	15	13		a	6
% not reported above because of small Base N	50	43	14	a	a	1		9	11
Total in Same Areas	55	20	283	30	32	250		32	116

NA = Not Applicable, respondents held no in-school job.

[a] Percent not reported because Base N less than 10.

TABLE 6-7

Percentages of Current Female Students Whose In-School Jobs and Job Plans Are in Same Occupational Areas They Are Studying

Vocational Areas	Co-op			Part-time			No Job		
	Job	Plans	Base N	Job	Plans	Base N	Job	Plans	Base N
	%	%		%	%		%	%	
Office Occupations	87	54	301	44	50	284	NA	58	168
Distributive Education	53	9	181	41	13	46		0	27
Health	82	75	56	21	53	19		a	8
Gainful Home Economics	62	24	21	56	17	18		17	23
Trade and Industry	27	15	26	6	33	18		37	19
Technical	a	a	2	a	a	7		0	0
Agriculture	0	0	0	a	a	1		0	0
% not reported because of small Base N	a	a	2	a	a	8		a	8
Total in Same Areas	72	39	587	40	44	393		47	245

NA = Not Applicable, respondents held no in-school job.

[a] Percent not reported because Base N less than 10.

TABLE 6-8

Percentages of Former Students Whose First Jobs After High School Were in the Same Vocational Areas They Studied, by Sex and Co-op-Comparison Classification

Vocational Areas	Males				Females			
	Co-op		Comparison		Co-op		Comparison	
	Job	Base N	Job	Base N	Job	Base N	Job	Base N
	%		%		%		%	
Office Occupations	32	19	20	20	63	425	58	294
Distributive Education	35	80	a	7	27	130	5	19
Health	50	12	a	2	39	72	40	15
Gainful Home Economics	a	7	a	5	44	16	a	9
Trade and Industry	46	160	25	114	17	18	13	15
Technical	31	62	18	49	a	2	a	4
Agriculture	a	7	a	7	a	1	a	1
% not reported above because of small Base N	50	14	43	21	a	3	14	14
Total in Same Area	40	347	25	204	51	664	51	357

[a] Percent not reported because Base N less than 10.

part-time jobs. The figures for distributive education tend to support this explanation. Distributive education has high enrollments coupled with low numbers who plan to continue in similar work after completing their education. If a student's motive for entering a cooperative education program is not to learn particular skills but to obtain part-time employment, distributive education would be the best choice.

After High School

Whatever their plans and motivations, the responses of former students indicate that many of the vocational students did obtain employment in the areas they studied. The percentages of former students whose first regular jobs following high school were in the same vocational areas as they studied are shown in Table 6-8.

In Tables 6-6 and 6-7, the large number of current students who were undecided about their job plans depressed the percentages who planned to seek jobs in the vocational areas which they were studying. Similarly, in Table 6-8 the former students who had not held any regular full-time jobs after leaving high school depress the percentages who obtained jobs related to their training. If, for example, the co-op students who never obtained regular jobs are subtracted from the base numbers, the numbers who obtained jobs are 303 for males and 518 for females. When these numbers are used as the bases for calculating the percentage of co-ops who obtained jobs in the same areas they studied, the results are 46 percent for males and 65 percent for females. For the comparison groups, the same adjustment yields a base number of 160 and a figure of 31 percent of males in related jobs; and a base of 270 and 67 percent for females.

Thus, the data presented in Tables 6-5 through 6-8 which trace the relatedness of vocational courses, jobs held, and job plans can be considered conservative. These data reflect relatedness rather strictly defined. If a broader definition of relatedness and continuation within vocational areas were used, or if different bases were used to calculate the percentages, the results in most cases would show higher levels of job-training relatedness.[5]

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[5] It is of interest that the figures in Table 6-8 correspond quite closely to the percentages in Table 7-7, which reports how former students rated the relatedness of their first jobs to the occupational areas they studied. Among the co-op students, 42 percent of males and 54 percent of females rated their jobs the same as or highly related to the areas studied. Table 7-7 uses a more liberal method of calculation in that only students who obtained jobs are included.

Even with more liberal standards, however, few of the areas (except office occupations for females) exceed 50 percent. In other words, the average vocational student in a cooperative program--unless she is a female studying office occupations--has, at best, about a 50 percent chance of obtaining his or her first regular job in the vocational area he or she studied in high school. If the student is not in a cooperative program, chances are slightly worse.

How is this 50 percent figure to be evaluated? It is unrealistic to expect that all vocational students should find jobs that use the skills they study; but should not more than half be able to do so? For the present study, the finding of most interest is that cooperative programs do give their students an advantage in obtaining related employment both in school and afterwards. The amount of advantage, however, is not large, and the proportion of all students who find training-related employment should be of concern to vocational educators.

Post-High School Plans and Experiences

There is, of course, more to career planning and development than simply finding a job right after high school. In fact, over half of the current students did not expect to seek regular full-time employment immediately after graduation. These students were asked their "...main plans for when you leave high school." Main plans were defined to exclude part-time or summer plans and examples were given (see Question 75 in current student questionnaire, Appendix A-1). As Table 6-9 indicates, almost half of the males (48 percent) and over half of the females (56 percent) planned to continue their education either in college or some type of vocational, technical, or business school. Among the males, more of the co-op and work-study students planned to work, but this was not true of the females.

The data that were collected from the former students give some idea of the likelihood that the current students will be able to carry out their plans. The former students were asked to report the number of months they spent in the activities listed in Table 6-10. This table presents the percentages of all former students in the groups who took part in these activities, and the mean number of months that all students in the group spent in each activity.

The 82 percent figure for co-op males in Table 6-10 indicates that four out of five held a full-time job for at least one month. Co-ops were more likely to hold jobs; students who were not in work experience programs were more likely to attend school or college full-time. These differences held for both males and females.

TABLE 6-9

Current Students' Main Post-High School Plans by Sex and Work Status

Main Plans	Males				Females			
	Co-op	Work Study	Part-time	No Job	Co-op	Work Study	Part-time	No Job
	%	%	%	%	%	%	%	%
Get a full-time job	37[a]	46	30	33	36	41	34	30
Attend college full-time	30	23	40	38	39	32	45	46
Attend vocational, technical, or business school full-time	11	10	13	13	14	15	12	15
Go into military service	14	10	8	9	2	2	1	2
Be a housewife	0	0	0	0	3	4	2	2
Other	1	2	1	2	1	2	1	*
Undecided	7	9	8	5	4	5	4	5
Base Number	275	135	454	245	579	127	562	390

[a] Difference among male respondents significant, chi square = 30.83, $p < .01$.

*Less than one-half of 1 percent.

TABLE 6-10

Activities Former Students Reported Engaging in for a Period of One Month or Longer Following High School, by Sex and Work Status in School

Activities Lasting One Month or Longer	Males			Females		
	Co-op	Work Study	Comparison	Co-op	Work Study	Comparison
Percent working 35 hours or more a week	82%[a]	80%	74%	82%[a]	76%	69%
Mean months of activity	14.62	15.33	11.06	13.64	11.09	9.80
Standard deviation	11.75	14.94	11.06	12.46	11.91	10.95
Percent attending school or college full-time	28%[a]	34%	46%	37%[a]	48%	46%
Mean months of activity	2.75	3.84	5.71	4.25	4.89	5.64
Standard deviation	5.50	7.22	8.46	7.26	7.31	8.04
Percent unemployed, looking for work	19%	22%	26%	21%[a]	24%	28%
Mean months of activity	1.09	.86	1.24	1.09	1.40	1.43
Standard deviation	3.23	2.25	3.08	3.02	3.58	3.42
Percent keeping house, not holding a job	*	2%	1%	7%	12%	9%
Mean months of activity	.04	.07	.07	.85	1.57	.95
Standard deviation	.75	.67	.95	3.95	6.48	3.93
Percent unable to work due to sickness, injury	5%	5%	3%	6%	9%	3%
Mean months of condition	.06	.46	.14	.15	.29	.07
Standard deviation	.44	3.56	.69	.84	1.26	.51
Percent on active duty with military	7%	10%	7%	2%	1%	*
Mean months of activity	1.21	1.45	1.16	.09	.01	.02
Standard deviation	5.75	5.64	5.26	.93	.08	.39
Mean months out of high school	19.56	21.49	21.70	19.82	21.13	21.07
Sum of mean months of activity	19.77	22.01	19.38	20.07	19.25	17.91
Proportion of months out of high school accounted for	1.01	1.02	.89	1.01	.91	.85
Base number for means and percentages	347	177	387	664	139	531

*Less than one-half of 1 percent.

[a] Differences among groups of the same sex significant at the .05 level or less.

The interpretation of the means in Table 6-10 is not as direct. For each of the six groups, the means were calculated by dividing the number of months reported by the former students in the group by the total number in the group. The means thus reflect the "average" way in which students in the respective groups allocated their time since leaving high school. The "average" male co-op student has been out of school almost twenty months. Of these twenty months, he has spent fifteen working full-time, three attending school or college full-time, one in military service, and one unemployed, looking for work. This interpretation, however, does not reflect the actual number of months spent in these activities by those former students who pursued them. For example, only 7 percent of the co-op males entered military service, and that 7 percent actually spent an average of seventeen months in the military.[6]

In general, considering that Table 6-9 refers to the period immediately after high school and Table 6-10 covers an average of twenty-one months, the data suggest that many of the current students will carry out their plans. The proportion who plan to continue their education full-time and the proportion of former students who did so are in fairly close agreement. In addition, the next section shows that many who did not continue their education full-time did so on a part-time basis.

The largest discrepancies between Tables 6-9 and 6-10 are in the percentages who worked full-time. These discrepancies are more apparent than real; they reflect the longer time period covered in Table 6-10. Many of the students who attended school or college full-time did so for a year or less and then obtained full-time jobs. The percentage in full-time employment is also raised by students who held full-time summer jobs.

Post-High School Education and Training

In addition to the information on months of full-time school or college, the former students were asked about participation in other post-high school educational and training programs. Table 6-11 shows that slightly less than half of the former students had taken some type of program. The sources or settings of the programs taken are also indicated.

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[6] The information in Table 6-10 can be used to calculate the mean number of months reported by students who actually engaged in each of the activities. All that is necessary is to divide the reported mean by the reported proportion (the percentage expressed as a decimal). For example, co-op males in military service:

$$\frac{1.21}{.07} = 17.29 \text{ (months of actual service).}$$

TABLE 6-11

Source or Setting of Former Students' Post-High School Educational or Training Programs by Sex and Work Status in School

Source or Setting	Males			Females		
	Co-op	Work Study	Comparison	Co-op	Work Study	Comparison
	%	%	%	%	%	%
Community or two-year college	29	39	34	37	33	32
Four-year college or university	17	19	23	19	22	31
Employer, place of work	15	7	5	13	5	6
Private business or technical school	14	10	18	18	20	21
Area vocational-technical school	11	6	8	8	17	7
Military service	10	17	10	2	0	*
Other	3	2	2	3	3	4
Base number	159	84	202	306	60	238
Base number as percent of total sample (% of total sample taking programs)	47%[a]	47%	52%	47%[a]	44%	46%
Number in total sample	345	174	383	654	135	525

Difference among groups of the same sex regarding source of training statistically significant:

Males: Chi square = 21.60, 12 df $p = .04$.
Females: Chi square = 29.13, 12 df $p < .01$.

*Less than one-half of 1 percent.

[a] Differences among groups regarding proportion taking any post-high school programs are not significant.

There were significant differences across the groups with regard to the sources or settings of the programs. For both males and females, co-ops were more likely to have received training from their employers, and comparison group students were more likely to have attended four-year colleges. The other differences were not consistent for both sexes. Proportions of the separate groups who took programs did not differ significantly.

Among the males, no significant differences emerged across the groups in the length of the programs or the proportions who completed them. Over half of the males took programs which lasted less than one year, and about half had completed their programs or were still attending them at the time they were surveyed. Among the females, however, the comparison group students took longer programs than the other females, and they were more likely to be attending them at the time they were surveyed.

The students were asked what their programs had trained or prepared them for, and their answers were classified with a code similar to that used to classify vocational courses. This procedure permitted a comparison of the vocational areas that students studied in high school and in post-high school programs. The comparisons were made using the method presented in detail in Table 6-5. Table 6-12 shows the percentages of former students who studied the same areas in high school and in post-high school programs.[7]

The base numbers used for calculating the percentages in Table 6-12 are limited to former students who reported (a) that they took vocational courses in high school and (b) who also reported the type of programs they took after high school. If the percentages had been based on all of the students who took vocational courses, as the percentages in Table 6-8 were, they would be far lower. Table 6-8 traced the percentages of all vocational students who continued in the same vocational areas from high school into their first regular jobs. Table 6-12 traces only those who reported having taken post-high school programs.

Despite these differences in the calculation of the percentages in the two tables, they show many similarities. The total percentages for students in the same vocational areas as they studied in high school are quite similar for all groups except the comparison group of males. For this group, educational continuation is about twenty percentage points higher than job continuation. In both tables, office occupations

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[7] Former work study students are not included in Table 6-12, because they were defined as those students who held school-supervised jobs while in high school who did not study vocational courses.

TABLE 6-12

Percentages of Former Students Who Studied Same Vocational Areas in High School and Post-High School Programs, by Sex and Co-op-Comparison Classification

Vocational Areas	Males				Females			
	Co-op		Comparison		Co-op		Comparison	
	Prog.	Base N	Prog.	Base N	Prog.	Base N	Prog.	Base N
	%		%		%		%	
Office Occupations	a	7	45	11	67	166	51	111
Distributive Education	23	35	a	2	15	52	a	9
Health	a	4	-	-	79	38	a	4
Gainful Home Economics	-	-	a	2	a	7	a	3
Trade and Industry	33	58	36	33	a	6	a	4
Technical	58	36	55	33	a	2	a	1
Agriculture	a	3	a	1	a	1	-	-
% not reported above because Base N less than 10.	57	14	a	5	33	16	33	21
Total in Same Area	42	133	44	82	57	272	52	122

[a] Percent not reported because Base N less than 10.

for females show high continuation and distributive education shows fairly low continuation. Unlike Table 6-8, however, Table 6-12 gives little evidence that taking part in a cooperative program was associated with continuing in the same vocational areas. The one group of co-op students who were most likely to continue in the vocational area they studied were females in office occupations, a fact that reflects the traditional, built-in relatedness between education and jobs in this area.

The former students were also asked what they thought they would be doing one year in the future. All groups anticipated high educational activity (see Table 6-13). Co-op students of both sexes were more likely than the other groups to anticipate working.

Knowledge of Occupations

Another potential contribution of work experience programs to vocational development is to increase students' knowledge about occupations. Students who have more experience in the labor market would be expected to learn more about the variety of jobs which are represented there.

To determine whether participation in school-supervised work experience programs was associated with increased knowledge about occupations, a short test was administered to the current students. The test consisted of seventeen items, each of which included a job title (e.g., assembler, statistical clerk), and three short descriptions of job duties, only one of which was correct.[8]

In scoring the items, one point was assigned for each correct answer. The range of possible scores was thus 0 to 17. As Table 6-14 indicates, of those students who completed the test, everyone correctly identified three or more jobs (4 percent of the females and 6 percent of the males did not take the test). The scores are clustered in the upper half of the range.

Holding a job while in school--school-supervised or part-time--is associated with scoring higher on the test; however, the differences among the groups are not large. Among the males, the difference between the means for the co-op and no job groups is just over one percentage point (11.91) to 10.85). Nevertheless, these differences are highly significant ($p < .001$), and like the distributions in Table 6-14, show higher scores among the job holders.

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[8] These items were developed for the longitudinal studies of work experience being conducted at The Ohio State University, Center for Human Resource Research, and were used with the permission of the study's director, Dr. Herbert Parnes. The items were originally published in Herbert Parnes *et al.*, *Career Thresholds*, Vol. I (U. S. Department of Labor, Manpower Administration, Monograph No. 16, 1970), and Roger Roderick and Joseph Davis, *Years for Decision* (U. S. Department of Labor, Manpower Administration, Monograph No. 24, 1974).

TABLE 6-13

Former Students' Anticipated Activities One Year in Future, by Sex and Work Status while in School

Anticipated Activities	Males			Females		
	Co-op	Work Study	Comparison	Co-op	Work Study	Comparison
	%	%	%	%	%	%
Working	70[a]	60	55	69[a]	53	58
Attending school, college	35[a]	45	46	38	41	40
In military service	5	10	6	2	1	1
Keeping house	0	1	*	10	12	10
Other	*	0	0	1	0	*
Undecided	6	7	10	7	9	6
Total[b]	116	124	117	125	117	116
Base number	347	177	387	664	139	531

[a] Differences among groups of the same sex significant at .05 level or less.

[b] Total exceeds 100 percent to the extent that respondents anticipated more than one activity. Most multiple responses involved both working and attending school or college.

TABLE 6-14

Knowledge of Job Titles Among Current Students by Sex and Work Status

Score Group (Range 0 to 17)	Males				Females			
	Co-op	Work Study	Part-time	No Job	Co-op	Work Study	Part-time	No Job
	%	%	%	%	%	%	%	%
15 to 17	19[a]	15	17	11	12[a]	10	14	8
12 to 14	40	39	45	32	42	40	40	35
9 to 11	29	24	21	35	28	31	30	34
6 to 8	10	18	10	16	16	15	11	17
3 to 5	2	4	6	5	2	4	4	7
Base number	265	132	452	225	574	125	554	379

[a] Difference among the groups statistically significant.

Males: Chi square = 37.96 $p < .001$.
Females: Chi square = 32.61 $p < .01$.

Since the differences among groups, while significant, were quite small, a multiple regression analysis was conducted to determine more precisely the effects of holding a job on the test scores (see Appendix C-1). The analysis showed that when the effects of such differences as family background and personal characteristics are controlled for, holding a job is still associated with higher job knowledge scores.

Summary

This chapter has examined:

1. Influences on students' choices of vocational programs,
2. Their reasons for choosing their courses of study,
3. Relationship of the jobs held to school training,
4. Post-high school plans and experiences, and
5. Knowledge about different types of jobs.

Influences on Program Choice. All of the students rated hobbies, leisure activities, and part-time or summer jobs as those experiences which had a positive influence on their choices. Overall, having a school-supervised job was associated with reporting more, and more helpful experiences of an exploratory nature.

Reasons for Choosing Courses. Most of the sample students reported preparation for employment or further schooling as the most important reasons for choosing their courses of study. The co-ops reported preparation for employment as the reason for their course choices more frequently than any other group.

Job-Training Relatedness School-supervised jobs were more likely to be related to courses than other jobs. The percentages of current students who hoped to find jobs related to their educational training after graduation was low for all groups, perhaps because taking a cooperative job reflects exploratory behavior, or perhaps because students enroll in cooperative programs in order to get part-time jobs without planning to continue similar work after graduation. The average vocational student (with the exception of females studying office occupations) has about a 50 percent chance of securing a regular full-time job in a field related to that studied.

Post-High School. Almost half of the males and over half of the female current students surveyed planned to continue their formal education in some way after graduation. Among the males, more of the co-op and work study students planned to obtain jobs than did the part-time or no job groups. The former students' responses indicate that co-op students are more likely to hold jobs after graduation; the comparison groups are more likely to attend school or college full-time. In addition, former co-ops are more likely to receive training from their employers, and comparison group students are more likely to attend four-year colleges.

Occupational Knowledge. Holding a job while in high school--either school supervised or part-time--is associated with greater knowledge about jobs. Working as part of a co-op program had slightly more effect on job knowledge than work study or part-time jobs. Scores on the job knowledge test correlated significantly with I.Q., race, and self-esteem.

On balance, it appears that holding a school-supervised job, especially in a co-op program, is associated with (a) student reports of having had experiences that helped them to make their vocational choices; (b) choosing vocational programs in order to prepare for employment; (c) holding jobs related to school training; (d) employment, rather than continued education after graduation, along with employer-sponsored job-training; and (e) more knowledge about jobs before graduation.

CHAPTER 7

THE EFFECTS OF WORK EXPERIENCE ON STUDENTS' PERCEPTIONS OF SCHOOL AND JOBS

Introduction

This chapter examines the responses of current and former students, by sex and work status while in school, to structured questionnaires. The students were asked how well they liked school, how satisfied they were with the education they received, how hard they and their schools were trying (or had tried) to educate them for their future lives, and how useful their education would be when they left school. Students were also asked a number of questions designed to test whether or not holding jobs while in school had any effect on their self-esteem. Former students were asked how well the school had prepared them for their jobs and how related their school training was to their jobs.

In addition, some of the direct effects of holding a job while in school are explored, such as effects on participation in extracurricular activities and effects on truancy and dropout behavior.

Satisfaction with School

In general, students were more likely to be satisfied than dissatisfied with their education. Among current students, both female and male, regardless of their work status while in school, about half or more of the students reported either that they liked school or liked it very much (49-64 percent); about one-third were neutral; and a small minority (5-17 percent), disliked school or disliked it very much. The attitudes of females were a little more positive than those of the males, with part-time and no job females reporting a somewhat greater liking for school than all other groups of students (see Table 7-1).

Students' liking for school is probably influenced as much by the social and recreational aspects of school attendance as by the educational process itself. To tap more specific attitudes towards education, current and former students were asked to rate their satisfaction with the education they were receiving or had received. The responses obtained were similar to those reported for the previous item (see Tables 7-2 and 7-3).

TABLE 7-1

Current Students' Reports of How Well They Liked School by Sex and Work Status

Like School	Males				Females			
	Co-op	Work Study	Part-time Job	No Job	Co-op	Work Study	Part-time Job	No Job
	%	%	%	%	%	%	%	%
Like it very much	14	15	14	19	21[a]	18	21	22
Like it	37	34	38	36	38	39	43	42
Neutral, neither like it nor dislike it	34	34	35	32	31	30	26	29
Dislike it	8	9	8	8	8	6	6	4
Dislike it very much	6	8	4	5	4	6	4	1
No response to the question	1	0	1	*	1	0	1	2
Base Number	283	143	476	251	587	130	574	408

[a] Liking for school differs across the female group: chi-square = 31.93 $p < .001$

*Less than one-half of 1 percent.

TABLE 7-2

Current Students' Overall Satisfaction with the Education They Received in Their Courses, by Sex and Work Status

How Satisfied	Males				Females			
	Co-op	Work Study	Part-time Job	No Job	Co-op	Work Study	Part-time Job	No Job
	%	%	%	%	%	%	%	%
Very satisfied	13	15	14	15	24	15	21	17
Satisfied	53	53	47	53	49	54	52	62
Neutral	23	21	27	24	17	22	19	14
Dissatisfied	8	6	10	6	8	8	8	6
Very dissatisfied	3	4	2	3	2	2	2	1
Base number	283	141	475	247	586	129	573	397

[a] Satisfaction reported differs significantly across the female group: chi square = 22.10 *p*. < .03.

TABLE 7-3.

Former Students' Reported Satisfaction with the
Education They Received in High School,
by Sex and Work Status

How Satisfied	Males			Females		
	Co-op	Work Study	Comparison	Co-op	Work Study	Comparison
	%	%	%	%	%	%
Very satisfied	17	12	9	22	16	17
Satisfied	41	37	41	45	31	46
Neutral, neither satisfied nor dissatisfied	25	33	33	19	36	22
Dissatisfied	12	13	12	10	9	11
Very dissatisfied	5	5	5	4	7	4
Base number	346	177	383	664	139	529

[a] Reported satisfaction differs significantly across both male and female groups:
Males: chi square = 15.57 *p*. < .049.
Females: chi square = 30.54 *p*. < .001

Among current students, females who did not have jobs were a little more satisfied than those who did, and females overall reported a higher degree of satisfaction than males (47-79 percent satisfied or very satisfied, as compared to 49-68 percent for males). There were no significant differences across the four groups of males. Among the former students, however, both male and female cooperative students were more likely to be satisfied with their education than any other group. It will be recalled that the cooperative students were more likely to choose their courses of study to prepare for employment than other students. These results suggest that the cooperative students may have had an easier transition from school to work. This ease of transition, together with their greater success in finding employment related to their vocational studies (Table 7-7), may account for the relatively high degree of educational satisfaction that co-ops express after leaving school.

As another indication of satisfaction with their educational experiences, current students were asked how much they felt they were learning from the courses they were taking (see Table 7-4). The most significant difference in their responses occurred between male and female cooperative students. Female cooperative students reported learning a great deal from their courses almost three times more frequently than did the male students. Part of this difference might be explained by the particular areas of study chosen by these students. Female students had high enrollment in business education courses in which they learned skills such as typing, operating business machines, and shorthand--skills which have direct application on the job. Such jobs, moreover, tend to be consistently available. Male students, however, were enrolled primarily in distributive education and trade and industry courses in which the work is not as specific and directly transferrable to job situations. The more varied nature of these courses and of the jobs to which they lead may have made it difficult for the male students to observe a direct correlation between their classwork and jobs.

Schools' and Students' Effort to Educate

Both current and former students were asked how hard they thought their schools had tried to prepare them for leaving school (see Tables7-5 and 7-6). Over three-quarters of the current and former students in all categories said that their schools had tried at least a little. Roughly half said that their schools had tried hard or very hard to prepare them. The work study students were slightly less positive in their assessments of the schools' efforts, which reflects a general negative trend in the responses of work study students. Since many of the work study programs included in the study were designed primarily to prevent drop-outs, the lower satisfaction with school reported by these students is not surprising.

TABLE 7-4

How Much Current Students Report Learning from the Courses They Are Taking This Year, by Sex and Work Status

How Much Learning	Males				Females			
	Co-op	Work Study	Part-time Job	No Job	Co-op	Work Study	Part-time Job	No Job
	%	%	%	%	%	%	%	%
Learning a great deal	8	13	15	15	22[a]	16	22	19
Learning a lot	26	18	24	28	25	20	27	29
Learning an average amount	48	45	37	38	39	41	34	43
Learning a little	15	20	20	16	12	16	15	9
Learning nothing	2	4	4	3	1	6	2	*
Base number	281	136	469	244	583	128	567	403

[a] Satisfaction with how much is being learned differs significantly across the female groups: chi square = 38.90 _p_. < .001.

*Less than one-half of 1 percent.

TABLE 7-5

How Hard Current Students Think Their School is Trying to Prepare Them for Leaving School, by Sex and Work Status

How Hard School Tries	Males				Females			
	Co-op	Work Study	Part-time Job	No Job	Co-op	Work Study	Part-time Job	No Job
	%	%	%	%	%	%	%	%
Very hard	12	13	10	14	19	23	18	18
Hard	37	31	39	44	42	36	41	46
A little	35	39	34	29	28	27	30	25
Not very much	11	16	14	9	9	9	9	9
Not at all	5	2	3	4	3	4	2	2
Base number	283	140	469	248	586	129	570	395

TABLE 7-6

How Hard Former Students Think Their Schools Tried to Prepare Them for Leaving School, By Sex and Work Status While in School

How Hard School Tried	Males			Females		
	Co-op	Work Study	Comparison	Co-op	Work Study	Comparison
	%	%	%	%	%	%
Very hard	14[a]	12	11	17	14	14
Hard	41	27	34	46	37	45
A little	30	39	34	25	27	25
Not very much	10	16	16	10	17	12
Did not at all	5	6	6	2	5	4
Base number	345	176	377	662	137	526

[a] How hard students reported their school tried to prepare them for when they left school differed significantly across the male group. Males: chi square = 16.17 $p < .03$.

Again, the female students, both current and former, tended to perceive the schools' efforts more positively than the males. The female respondents were more likely to report that the school tried very hard to prepare them for graduation. This tendency could be related to the female students' perceptions of greater relatedness and continuity between their high school preparation and their work experience or expectations for the future.

To supplement the question on the schools' efforts at preparation, the students were asked how hard they themselves were trying (current students) or had tried (former students) to get the preparation they needed for leaving school. In general, the students rated their own efforts more highly than the efforts of their schools, and the current students rated their efforts more highly than the former students rated theirs. Very few respondents, either current or former, reported not trying at all. Significant differences were found in the categories "very hard," "hard," or "a little," in which 90 to 95 percent of all the respondents placed themselves. The work study students usually indicated that they tried less than the other groups to prepare themselves. Female students reported trying harder to prepare themselves than male students.

Student Ratings of Relatedness of Jobs to High School Preparation

Former students were asked the extent to which the first jobs they obtained after high school were related to the occupational areas they had studied and how well their high school training had prepared them for these jobs. As would be expected, the cooperative students reported considerably more relatedness between jobs and training than did the work study or comparison groups (see Table 7-7).

The female cooperative students (who were enrolled, for the most part, in office occupations) reported somewhat more relatedness than did the male students, thus supporting the results that have been reported in previous studies: female students tend to enroll in occupational courses which have traditionally been identified as women's work, and these courses usually lead to related employment following graduation.[1] Relatedness between the course of study and

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[1] Pennsylvania Vocational Education Management Information Directory, Bureau of Vocational, Technical and Continuing Education (Harrisburg, Pennsylvania, 1974); M. U. Eninger, The Process and Product of T & I High School and Vocational Education in the United States (Pittsburgh, Pennsylvania: American Institutes for Research, 1965); and Jacob J. Kaufman, et al., The Role of the Secondary Schools in the Preparation of Youth for Employment (University Park, Pennsylvania: The Pennsylvania State University, Institute for Research on Human Resources, 1967).

TABLE 7-7

Relatedness of Former Students' First Regular Job After High School to the Occupational Areas They Studied in High School, by Sex and Work Status in School

How Related	Males			Females		
	Co-op	Work Study	Comparison	Co-op	Work Study	Comparison
	%	%	%	%	%	%
Same as area	22[a]	5	10	26	11	19
Highly related	20	10	7	27	11	20
Slightly	22	18	12	21	22	14
Not at all	32	32	48	21	31	34
Did not study an occupational area in high school	4	35	22	4	25	12
Base number	303	147	297	518	100	369

[a] Relatedness reported differs significantly across both male and female groups: Males: chi square = 126.71 p. < .001
Females: chi square = 91.61 p. < .001

employment following graduation is due mainly to the wide applicability of office skills and the restricted number of alternative job choices open to female students. No comparable course of study with such a large employment market exists for males.

The more job changes that former students report following graduation, the less they report their jobs to be related to the courses they took while in high school. The loss of relatedness is probably due in part to their willingness to accept any employment, regardless of interest or training, due to an uncertain job market. It could also reflect a kind of "distancing" effect--it may be that the more experience students gain in the labor force, the less likely they will be to attribute their skills to high school training, and the more likely they will be to attribute them to on-the-job experience. In any case, this decrease in reports of job relatedness is consistent across all groups of students.

The students' responses to the question about how well their high school training prepared them for jobs correlated highly with their assessments of job-training relatedness ($r = .74$). (This correlation was calculated only for respondents who had held at least one regular job after graduation and who reported having studied an occupational area while in school.)

Former cooperative students tended to report excellent or good preparation for their jobs more frequently than work study or comparison (part-time and no job) groups (Table 7-8). In all three groups, the female respondents were more positive about their preparation than their male counterparts. About two-thirds of the males in both the work study and comparison groups reported either they did not receive training or their training gave them poor or no preparation for their jobs, but less than half of the females in these groups reported the same. Among cooperative students, only 26 percent of the males and 16 percent of the females claimed that they received little or no preparation. Surprisingly, 8 percent of both the male and female cooperative students claimed that their courses did not include training for jobs.

Current students were asked to project how useful they thought their training would be after they left high school (Table 7-9). Cooperative students tended to anticipate that their preparation would be more useful than work study students did. Once again, females gave somewhat more positive ratings.

When asked if they would choose the same course of study again, about half of the current students answered yes, the other half answered no or undecided (see Table 7-10). Current cooperative students tended to respond positively slightly more often than did the respondents in other groups. True to the pattern already observed, work study students tended to give the most negative answers to this question. The most undecided group of students was the current no job group. Former students

TABLE 7-8

Former Students' Ratings of their High School Preparation for their First Job, by Sex and Work Status in School

	Males			Females		
How Well Prepared	Co-op	Work Study	Comparison	Co-op	Work Study	Comparison
	%	%	%	%	%	%
Excellent preparation	17[a]	6	7	20	8	16
Good preparation	27	14	10	36	20	27
Fair preparation	22	20	15	21	27	16
Poor or no preparation	26	25	38	16	22	24
High school courses did not include training for jobs	8	35	30	8	23	18
Base Number	303	147	297	518	100	369

[a] Job preparation reported differs significantly across both male and female groups:

Male: chi square = 104.41 $p < .001$
Female: chi square = 57.29 $p < .001$

TABLE 7-9

Current Students' Ratings of the Expected Usefulness of Things Studied After They Leave High School, by Sex and Work Status

How Useful Will Things Being Studied Be	Males				Females			
	Co-op	Work Study	Part-time Job	No Job	Co-op	Work Study	Part-time Job	No Job
	%	%	%	%	%	%	%	%
Very useful	16[a]	15	15	20	31	24	27	30
Quite useful	30	16	30	26	30	20	32	31
Somewhat useful	30	28	29	22	22	28	26	22
A little useful	19	31	22	24	13	19	13	15
Not at all useful	5	9	4	7	3	8	2	2
Base Number	282	140	472	249	584	129	572	405

[a] Usefulness of things being studied differs significantly across both the male and female groups:

Male: chi square = 27.50 p. < 001
Female: chi square = 32.58 p. < .001

responded in a pattern similar to that displayed by current students. Again, the work study group was most negative, and female cooperative students, both current and former, were slightly more positive in their responses than any other group.

TABLE 7-10

Willingness of Current Students to Choose Courses They Were Taking Again, by Sex and Work Status

	Males				Females			
Would Choose These Courses Again	Co-op	Work Study	Part-time	No Job	Co-op	Work Study	Part-time	No Job
	%	%	%	%	%	%	%	%
Yes	52	43	50	51	63[a]	51	61	52
Undecided	26	31	24	24	19	19	20	27
No	22	26	26	25	18	30	19	21
Base number	282	141	474	246	587	129	572	396

[a] Responses differ significantly among female groups: chi square = 22.88 $p < .001$.

To summarize the information derived from the questionnaires about attitudes toward school, a factor analysis was conducted on the items from the current students' questionnaire that dealt with these feelings (see Appendix C-2). The overall distribution of the factor scores reflected the scores for individual items.

Feelings About Oneself

Until relatively recently, many students and observers have considered vocational courses to be second class, appropriate only for those students who could not meet the "more demanding" academic or college preparatory requirements. To determine whether or not the participants in this study were conscious of such attitudes in their schools, the current students were asked if they ever felt "looked down on" because of the courses they were taking. Separate questions were asked concerning the attitudes of fellow students and teachers.

Sixteen percent of the males and 11 percent of the females reported that they felt looked down on by fellow students "sometimes," "often" or "very often." Most of these responses were in the "sometimes" category. Among the females, work study students were a little more likely (19 percent) to report these feelings. The question concerning teachers included only three response alternatives: "yes," "no," and "undecided." A strong majority of both groups (74 percent of males, 86 percent of females) replied no, indicating that they never felt that their teachers looked down on them. The work study males were more likely than the other groups of males (36 percent) to choose yes or undecided. Work study students were significantly more likely to report attitudes of condescension.

The current students were also asked a series of questions designed to determine whether holding jobs had any effect on their feelings about their worth as individuals and their sense of competence. It seemed a reasonable assumption that students who had success in meeting job responsibilities would have more confidence in themselves. If such effects were present, however, the items in the questionnaire failed to measure them.

Seventeen standard self-report items were used, including, "I take a positive attitude toward myself," and "I wish I could have more respect for myself." The scoring was reversed where necessary, so that a high score always indicated positive feelings about oneself. The seventeen items were intercorrelated and factor analyzed. Three factors were identified which accounted for 34 percent of the total variability in the responses. The rotated loadings for these factors are presented in Appendix Table C-3. The low proportion of total variability which the factor analysis explained, 34 percent, indicates that responses to the separate items were influenced more by specific wording of the items than they were by underlying feelings in the respondents.

Given the internal weaknesses of these items, it is not surprising that they failed to detect significant differences among the four groups of respondents. Overall, however, these items present no evidence that having various types of work experience while in school had any major impact on how students feel about themselves.

Direct Effects of Holding A Job

The preceding sections of this chapter discussed some of the general effects that holding a job while in school has on students' attitudes toward school, jobs, and themselves. This section turns to some of the more direct effects of school-sponsored work experience on the students' career development. These include the students' reports of the effects of holding a job on participating in extracurricular activities and on behavior related to discipline problems, including consideration of dropping out of school. The students who held jobs were also asked a set of questions that were designed to assess their perceptions of the effects of holding jobs on their grades, relationships with teachers, and feelings of self-confidence. All of these questions were asked only of current students. As in most of the other results presented in this chapter, the groups were more similar than different. Where differences were found, however, they usually suggest that work experience programs are accomplishing their goals.

Extracurricular Activities

Holding a work experience job while in school, especially one which takes the student out of the building during regular school hours, could obviously limit the students' opportunities to participate in extracurricular activities. To assess the extent to which the extracurricular activities of working students were restricted, the current students were asked to indicate all of the organizations or clubs listed in Table 7-11 of which they were active members.

Perhaps the most significant result reported in Table 7-11 is the high rate of participation by cooperative students, both male and female, in vocational clubs such as VICA (Vocational Industrial Clubs of America) and DECA (Distributive Education Clubs of America). The percentage of male co-ops who belonged to vocational clubs is more than double that for any other activity listed for males in the table. Among the females, vocational clubs were reported more frequently than any other activity for all four groups, and by a wide margin, most frequently by co-ops.

In other activities for which significant differences were found, the results reveal more participation by students who did not have school-supervised jobs. These differences, however, are not nearly of the magnitude of those for vocational clubs. Although work experience students may be hindered somewhat from participating in a few extracurricular activities, they appear to be more than compensated by their access to vocational clubs--at least among the co-op students.

Discipline Problems

To determine whether or not holding a job had any effect on certain behaviors which cause problems in school, the current students were asked questions about being sent out of class, being suspended from school, and number of days truant. The first two questions did not yield any significant differences among the groups, either for males or females, but the level of problem behavior was surprisingly high. Virtually all of the females (98 percent) and almost all of the males (91 percent) reported that they had been sent to the principal or the discipline office at least once in their high school years because of misbehavior. Four out of five of the females (82 percent) and over half of the males reported that they had been sent five times or more, the highest response alternative listed in the questionnaire.

TABLE 7-11

School Organizations or Clubs in Which Current Students are Active Members, by Sex and Work Status

Organizations or Clubs	Males				Females			
	Co-op	Work Study	Part-time	No Job	Co-op	Work Study	Part-time	No Job
	%	%	%	%	%	%	%	%
Vocational clubs - VICA, DECA, FHA, FBLA, 4-H, etc.	62[b]	26	23	17	75[b]	39	33	27
Intramural sports	19	21	20	25	10	9	11	10
Interscholastic sports, cheerleaders	15[b]	16	21	26	8[b]	5	14	12
Musical, dramatic, or debating clubs, band, glee club	9[b]	5	12	17	12	13	16	17
Hobby clubs - photography, model building, chess, etc.	9	8	9	7	3	5	4	5
Subject matter clubs - history, science, language, etc.	7	6	11	10	10	9	14	11
Service clubs - Tri-Hi-Y, booster clubs	7	5	10	11	15[b]	12	18	12
Student Government	7	5	9	7	14	12	17	14
School newspaper, magazine, or yearbook	6	6	6	7	6[b]	5	11	9
Other	6	4	7	6	8	7	10	10
Base number	283	143	476	251	587	130	574	408

[a] These percentages do not total to 100 percent since any one respondent could be a member of many or none of the organizations listed.

[b] Differences among groups of the same sex significant at .05 level or less.

It should be recognized that students are sometimes removed from class as a result of relatively minor infractions. Suspension from school, however, is usually imposed only for major misbehavior, and 25 percent of the males and 12 percent of the females reported having been suspended while in high school.

The question on truancy--the only one to yield significant differences among the groups--was limited to behavior in the current school year. (The students completed the questionnaires in May 1975 when most were in the eighth month of the school year.) The differences shown in Table 7-12 are mainly between students who held jobs, including part-time jobs, and those without jobs. The students without jobs were more likely to be truant and to skip more days.

TABLE 7-12

Number of Days During School Year that Current Students Reported They Were Truant, by Sex and Work Status

	Males				Females			
Number of Days Truant	Co-op	Work Study	Part-time	No Job	Co-op	Work Study	Part-time	No Job
	%	%	%	%	%	%	%	%
None	30[a]	32	26	21	20[a]	18	20	14
1-2	9	5	5	5	3	5	4	2
3-4	7	12	9	9	7	7	7	6
5-6	11	15	12	10	11	5	12	11
7-8	11	18	16	14	15	24	19	16
9 or more	31	18	32	41	44	42	38	51
Base number	283	143	476	251	587	130	574	408

[a] Difference among groups significant at the .05 level or less:
Males: chi square = 34.00 df = 15 p < .01
Females: chi square = 29.64 df = 15 p < .02

Table 7-12 provides some indication that school-supervised jobs had their most beneficial effect on male work study students. In many of the tables in this report, these students are shown to be slightly more negative than others--less satisfied with their education and the jobs they obtained, less likely to rate their preparation as useful, and so on. Table 7-12 reveals, however, that of all those sampled, the male work study students were the least likely to be truant or to skip nine days or more.

The data on thinking about dropping out of school lend further support to the benefits of jobs for the work study students. All students were asked, "Did you ever think seriously about dropping out of school?" The percentages that reported they had seriously considered it, the reasons they reported for considering it, and the reasons they gave for not dropping out are listed in Table 7-13.

For all of the significant differences identified in Table 7-13, the work study groups, both male and female, are represented by the highest percentages. The work study students--either male, female, or both--were the most likely to think seriously about dropping out and to report that they disliked school and were getting poor grades. Their reasons for not dropping out (which differed significantly from the other groups') were: holding jobs while in school, and talks with friends and school personnel.

It should be noted that all of the percentages in Table 7-13 are based on the total number in the respective groups. Among the work study males, for example, 28 percent of the group reported that they thought seriously about dropping out. Seventeen percent said that they did so because they disliked school--a percentage that represents over half (61 percent) of those who considered dropping out. Among the work study females, the 14 percent of the total group who said they disliked school represents 52 percent of the students who considered dropping out. The percentages for reasons for considering dropping out and not doing so are lowered because they are based on the total in the groups.

These results thus support those found for truancy: the chance to hold a job while in school appears to deter the potential dropout. This, of course, is often part of what work experience programs are intended to do.

Attitudinal Effects

To determine how the current students perceived the effects of holding jobs while in school, they were asked to respond to eighteen questions such as, "Does holding a job cause you to get lower grades?" and "Do you like school better when you have a job?" These responses were scored on a three-point scale--yes, undecided, no--with the most

TABLE 7-13

Percentage of Total Sample that Thought Seriously About Dropping out of School, Main Reasons for Considering Dropping Out, and Reasons for Not Doing So, by Sex and Work Status

	Males				Females			
	Co-op	Work Study	Part-time	No Job	Co-op	Work Study	Part-time	No Job
	%[a]	%	%	%	%	%	%	%
Seriously considered dropping out	24	28	23	21	18[b]	27	14	14
Reasons for considering -								
Disliked school	11[b]	17	9	8	10[b]	14	8	5
Conflict with school personnel	9	6	7	4	5	6	4	2
Poor grades	7	10	7	4	2[b]	8	3	2
Needed money	6	12	7	7	3	4	4	3
Marriage or pregnancy	1	3	1	1	2	5	1	1
Reasons did not drop out								
Got a job while in school	8[b]	10	6	4	3[b]	8	4	1
Talks with friends	8	7	7	6	6[b]	7	3	3
Parents would not allow	5	10	6	5	5	7	4	3
Talks with school personnel	4	8	4	3	3[b]	8	1	3
Grades improved	5	1	5	4	2	5	2	2
Base number	283	143	476	251	587	130	574	408

[a] These percentages do not total to 100 percent. Each figure represents the proportions of the total sample that reported the answer listed.

[b] Differences among groups of the same sex significant at the .05 level or less.

favorable response always scored 3. Since these questions referred directly to jobs, only respondents who had held jobs during the current school year answered them (September 1974 to the time of completing the questionnaire, May 1975).

The students' answers were intercorrelated and factor analyzed using a principal components analysis followed by a varimax rotation. Four rather discrete factors were identified. The factor loadings are presented in Appendix Table C-4. The items which had the highest loadings on the four factors are grouped and labeled in Table 7-14, which also shows the percentage of each of the groups that gave a positive response to those items.

The significant differences shown in Table 7-14 support those found in response to other questions. Male and female cooperative students reported on-the-job application of the things they studied in school more frequently than the other groups. Work study students, especially females, were the most likely to report positive school effects, e.g., that holding jobs helped to keep them in school. The co-op and work study jobs were more likely than part-time jobs to teach skills that were not learned in school and to help students to decide what they wanted to do after leaving school. In addition to the percentage analysis of these items, the factor loadings were used to calculate standardized scores for the four factors which were compared across groups. As would be expected from the percentage differences, cooperative students, both male and female, scored significantly higher than the other groups on Factor II, application of things studied; and work study students, male and female, scored higher on Factor III, school effects.

The consistency of these results with those obtained at other points in the questionnaire established the reliability, and to some degree, the construct validity of these measures. Table 7-15 presents the actual interitem correlations.

The correlations which are underlined in Table 7-15 indicate the pairs of questions whose content is most similar. For example, the two highest correlations in the table relate responses on question 73f to responses on questions 64 and 65 below:

73f. Does holding a job help you to apply the things you study in school?

64. How well have the things you have studied in high school prepared you for this job?

65. How often do (did) you use the things you studied in school on this job?

TABLE 7-14

Percentage of Current Students Who Chose the Favorable Response on Items Relating to Effects of Holding a Job While in School, by Sex and Work Status

Job Effect Items, Q 73 (Favorable Answers: Y = Yes, N = No)	Males			Females		
	Co-op	Work Study	Part-time	Co-op	Work Study	Part-time
	%^{a}	%	%	%	%	%
Job-Caused Limitations						
c. Harder to find time to study (N)	53^{b}	59	43	58^{b}	63	47
q. Harder to do chores at home (N)	58	58	53	58^{b}	70	54
n. Less contact with friends (N)	50	51	51	56^{b}	59	58
a. Get lower grades (N)	71	78	69	86^{b}	82	77
g. Harder to take part in school activities (N)	22	22	26	30	31	28
i. Feel less a part of school (N)	57	63	67	62^{b}	60	70
Application of Things Studied						
f. Apply things studied in school (Y)	44^{b}	27	27	65^{b}	39	37
l. Understand things studied better (Y)	39^{b}	26	25	52^{b}	40	31
e. Make courses more interesting (Y)	27	22	19	40^{b}	39	21
School Effects						
m. Get along better with teachers (Y)	32	26	23	29^{b}	36	16
j. Continue in school, not drop out (Y)	44^{b}	53	37	40^{b}	47	40
d. Like school better (Y)	47	46	43	49^{b}	51	36
l. Help get better grades (Y)	12^{b}	14	7	17^{b}	24	9
Personal Effects						
p. Increased confidence in yourself (Y)	80	78	78	86	82	82
o. Taught skills not learned in school (Y)	86^{b}	86	82	88^{b}	86	78
k. Helped to get along with people (Y)	81	79	82	88	85	86
h. Decide what you want to do (Y)	60^{b}	60	50	74^{b}	65	55
n. Make you wish done with school (N)	44^{b}	33	49	44	47	51
Range of Base Numbers^{c}	276-280	136-140	456-463	579-586	126-130	557-566

[a] These percentages represent the proportion of the respondents who held part-time jobs while in school and who responded to the items listed.

[b] Differences between groups of the same sex significant at the .05 level or less.

[c] Base numbers differ because respondents did not complete all items.

TABLE 7-15

Intercorrelation of Students' Perceptions of Effects of Holding Jobs with Other Related Questions, All Current Students Who Held Jobs

Q 73 Items	Help choose 21K	Like school 24	Not drop out 326	Teachers try 36	Teachers encourage 37	Useful later 38	Useful now 39	Satisfied 49	School prepared 64	Use things 65	Taught new 66	Usefulness Att1	Teacher effort Att2	Positive items Self 1	Negative items Self 2
Make courses interesting	.23	.21	-.02	.19	.19	.28	.33	.26	.38	.36	.09	.34	.19	.06	.01
Apply things studied	.22	.21	-.05	.19	.16	.30	.35	.27	.56	.55	.09	.36	.18	.06	.11
Decide what want to do	.34	.04	.03	.06	.05	.11	.17	.10	.28	.27	.18	.15	.05	.06	.06
Continue in School	.19	.02	.18	.01	.04	.04	.06	.06	.14	.14	.07	.07	.03	.06	-.14
Understanding things studied	.25	.19	-.02	.13	.15	.27	.32	.25	.46	.45	.06	.33	.15	.08	.05
Get along with teachers	.18	.10	.02	.08	.10	.10	.14	.12	.19	.17	.09	.13	.10	.04	-.04
Taught things not in school	.14	.01	.01	-.00	.00	.01	.04	.01	.03	.03	.34	.02	-.01	.04	.12
Increased confidence	.14	.08	.02	.05	.02	.09	.09	.09	.12	.13	.13	.11	.04	.12	.13
Wish done with school	-.09	.27	-.12	.13	.14	.16	.13	.13	-.01	.02	-.05	.17	.14	.04	.10

Note: Pairs of observations used in calculation vary from 2082 to 2169 due to missing data. Any correlation .05 or higher is significant at the .01 level or less. Correlations underlined are those based on questions with similar content.

Question 73f also correlated in the .30's with questions that related to the usefulness of the material that students studied. In contrast, question 73o (which asked whether the job teaches skills not learned in school) correlated substantially only with question 66, "How many things have you learned in this job that you have not studied in school?," and not at all with questions 64 or 65.

In general, the magnitude of the correlations seems to be a function of how directly the questions tap the same content. In other words, the respondents appear to be both consistent and discriminating in their answers to most of the questionnaire items.

If it can be assumed that the students' responses accurately reflect reality (the correlations in Table 7-15 indicate that they are at least a consistent reflection), the school-supervised work experience programs seem to be accomplishing their goals. The cooperative programs provide an additional dimension to the training of their students; the work study programs deter potential dropouts and make school a more enjoyable experience for them; and both co-op and work study jobs tend to enhance career planning more than part-time jobs do. The element of school supervision thus appears to add benefits to the work experience of students that surpass those that students receive in part-time jobs they obtain on their own.

Summary

Students were asked to report on (a) how much they liked school, (b) their satisfaction with courses, (c) how useful their education would be to them, and (d) how hard they and their schools tried to educate them for their future lives. Former students were also asked how related their first regular jobs were to their preparation in school, and all students were asked a number of questions designed to determine whether work experience while in school had any effect on their feelings about themselves. Finally, some of the direct effects of holding a job while in school were explored, including effects on truancy and dropout behavior.

Satisfaction with School. Most students, especially among the females, liked school and were satisfied with the education they were receiving or had received. Female students in general reported learning a great deal from their courses more often than males, and female cooperative students were nearly three times as likely to report learning a great deal in their courses than cooperative male students--probably because of the females' heavy enrollment in office occupations, which provides training in relatively specific skills. Female students, both current and former, were also more likely to perceive that their schools tried hard to educate them than were the male students, and were more likely to claim that they themselves tried hard to learn than were males.

Former cooperative students, especially females, reported more relatedness between their education and their jobs than any other group, and tended to assess the quality of the education they received more positively. About two-thirds of the males in the work study and comparison groups reported either poor or no preparation for their jobs; only about half of the females did the same; again, probably because many females are enrolled in office occupations and subsequently obtain jobs in that area, whereas the males' programs tend to be less skill-specific and less directly related to their post-graduation jobs. Work study students tended to respond somewhat more negatively to nearly all questions than the other groups.

Self Esteem. Many of the students reported feeling "looked down on" by others at least sometimes. Work study students were slightly more likely to have had this experience than the other students. Holding a job while in school does not seem to have any major effects on students' self-esteem.

Effects of Holding a Job. Holding a job while in school did not seem to limit participation in extracurricular activities, since the most striking incidence of membership in vocational clubs occurred among the co-op students. Other students participated slightly more often in other extracurricular activities than those who had school-supervised jobs. Although the incidence of discipline problems among all students was high, it appears that having a job had the most beneficial effect on male work study students, who were those most likely to be dissatisfied with their education and jobs, but least likely to be truant. Work study students, male and female, were also the most likely to think about dropping out, but said they did not do so in part because they had jobs while in school. Thus, the chance to hold a job while in school appears to deter potential dropouts. Moreover, students with school-supervised jobs were more likely to report favorable attitudes (as measured by questions such as "Do you like school better when you have a job?") than students with nonschool-supervised part-time jobs.

PART V

COOPERATIVE EDUCATION AND THE EMPLOYER

CHAPTER 8

EMPLOYERS' PERCEPTIONS OF COOPERATIVE EDUCATION*

Introduction

The benefits to students and the costs to students and schools that are associated with work experience education have been examined in this study. From a social perspective, employers' costs and benefits should also be considered, although it is extremely difficult to obtain precise measures of these components. Employers play an active role in cooperative education programs that is quite different from the comparatively passive relationship that employers have with traditional programs. Although this chapter cannot provide precise monetary estimates of employers' costs and benefits as a result of their participation in cooperative education programs, it does furnish an indicative analysis based on a mail survey of employers of cooperative education students.

The major finding presented in this chapter is that cooperative students are good "buys" to employers, i.e., the major impetus for hiring cooperative students is probably economic rather than altruistic. Co-op and regular employees were both reported to possess specific performance and cost advantages with no clear-cut indication of superiority for either. While regular employees demonstrated superior technical and communication skills, the co-op employees were seen to be more dependable and cooperative.

Co-op employees generally entail higher costs for supervision, training, and paper work. This cost disadvantage is probably at least balanced, however, by significantly lower salary and fringe benefit requirements, and lower turnover and absenteeism. For the firms sampled, the average starting salaries were $2.12 for co-op employees and $2.46 for regular employees. While the salaries of regular employees correlated positively with the level of skill demanded by their jobs, the pay of co-op employees did not correlate with skill. In addition, the vocational areas or job duties of co-op employees did not appear to affect the level of their starting pay, either in absolute terms or relative to regular employees in the same jobs. Starting pay for co-ops increased, however, as both the number of current co-op employees and the number of regular employees who were originally co-op placements increased. Thus, while co-op employees are underpaid both relative to other employees and to the skill level required by their jobs, companies which have had the most experience with co-op employees generally pay them higher wages.

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*Although the original proposal from which the present study emerged did not include a section on employers, and despite the fact that the results reported in this chapter are based on a limited sample, these findings are indicative of certain trends which may be of interest to many readers.

Chi-square analyses indicated that employers in different industries rated some aspects of the performance and costs of co-op employees differently. Employers in wholesale and retail trade and service industries were much more likely to rate the quantity and quality of the work of co-op employees highly than were employers in other industries. Orientation and training costs were seen to be highest for manufacturing and construction industries, probably due to the technical nature of the work in these industries. Firms which rotated the job tasks of the cooperative employees reported significantly higher costs for record-keeping and evaluations of performance.

As a whole, employers tended to rank the cost-saving advantages of hiring co-op students more highly than possible public relations benefits. In particular, participation of employers in cooperative education programs was viewed as a valuable tool for recruiting new employees and for evaluating potential regular employees. The public relations benefits of participation in such programs were, however, ranked more highly by branch plants of corporations than by independent plants.

The next section presents summary data on the characteristics of the employers and co-op jobs sampled. The third section analyzes the performance and costs to the employer of co-op employees relative to regular employees. The final section discusses the employers' perceptions of advantages that result from participation in cooperative education.

Characteristics of Employers and Co-op Jobs Sampled

Employers

Questionnaires were mailed to 250 firms which participated in cooperative education programs, from which 68 completed questionnaires were obtained (a 27 percent response). The questionnaire contained sixteen major questions that stressed the qualitative aspects of the employers' experiences with and impressions of cooperative education employees. The questionnaires were received from firms in all six of the areas (SMSAs) that were included in the sample, but over 80 percent came from the three largest metropolitan areas. The sample was about equally weighted among firms which cooperated with central city (35 percent), suburban (27 percent), and rural (38 percent) schools, and among independent companies and branch plants (53 and 47 percent). Over 50 percent of the respondent companies were from the wholesale and retail trade sectors of the economy. Service and government firms represented 25 percent of the total, followed by financial and real estate companies (12 percent) and manufacturing plants (10 percent). The surveyed plants averaged roughly 7.5 million dollars of sales for 1974 and employed an average of 345 people. All had been involved in cooperative programs for at least two years and almost two-thirds had participated for five or more years. Forty-three percent said that co-op students rotated among different jobs at their companies, but only 13 percent indicated that co-op students received special training or supervision that regular employees did not recieve.

Coordinators from the schools visited 90 percent of the firms to check on the students' performance, and 84 percent of the firms made formal reports to the schools. Only 28 percent said, however, that they gave students academic grades on their performance. Over 50 percent of the firms surveyed said that at least 30 percent of their co-op workers stayed on as regular employees.

Jobs

One section of the questionnaire concerned the occupational duties, hours, and starting pay of co-ops. The predominant vocational area was that of business, office, and commercial, which represented one-half of the sampled jobs. Distributive education accounted for 30 percent, and the remaining 20 percent was scattered among all other vocational areas. Fifty-three percent of the students were clerical workers; the others were sales workers (16 percent), service workers (12 percent), skilled craftsmen (10 percent), or semiskilled operators (9 percent). Co-op employees worked an average of twenty-one hours a week. An average of 11.5 regular employees held each of the jobs listed by employers, three of whom had originally been placed as co-ops, and 2.5 current co-op employees held each of the jobs listed. The average starting hourly wage for co-op employees was $2.12 compared to $2.45 for regular employees. The distribution of the co-ops' pay was strongly centered in the $2.00 to $2.10 range, the standard error being only $.04. The starting pay for regular employees also had a mode of $2.10 but was considerably more dispersed: 44 percent of those sampled were paid $2.50 or more.

Why co-op employees should be paid an average of roughly $.35/hour less than regular employees is not altogether clear. Evidence presented below indicates that the co-ops' work is not significantly inferior to that of regular employees; indeed, in some respects it may be superior. To determine whether cooperative employees' rates of pay reflect the degree of skill required by their jobs, job duties were ranked according to the skills necesary to perform them. A value of one was assigned to jobs which clearly required no specialized skills; two, to jobs which were not likely to require specialized skills; three, to those likely to require specialized skills; and four, to those which clearly required specialized skills. Pearson correlation coefficients were calculated for the starting pay of both co-op and regular employees against their respective skill levels. The values obtained were -0.0532 for the co-op employees and 0.1843 for regular employees. The former value is not statistically significant; the latter is significant, but only at the .10 level. These correlation coefficients suggest that, while the pay of regular employees corresponds to the skill level required by the job, the pay of co-op employees is uncorrelated with the skill requirement. Chi-square analyses revealed that vocational areas, job duties, or skill levels are not significant determinants of differences in pay among co-op employees. This is not surprising since, as noted earlier, co-ops' starting wages varied very little.

In order to create more variation in the wage data, the average starting salary for co-op employees was subtracted from that for regular employees and the positive values were retained. This "wage advantage" for regular employees was then cross-tabulated with vocational area, job duties, and skill level. Again no significant differences were observed. It is difficult to generalize from these cross-tabulations, however, since less than one-third (twenty-one) of the questionnaires included complete wage data for both regular and co-op employees.

Two significant differences in co-ops' starting pay among different worker groups were noted. The first resulted from a cross-tabulation of co-ops' starting pay against the number of co-op students who held the same job at a particular company. The differences were significant at the .10 level, indicating that pay tends to increase as the number of co-ops employed increased. In jobs for which only one cooperative employee was hired, wages covered a wider and generally lower range.

A comparison was also made between the number of regular employees in the job who were originally co-op placements and the starting wages of co-ops. In this case, the differences in starting pay were significant at the .05 level. Wages tended to increase as the number of regular employees who were originally co-op employees increased. For jobs in which only one or two regular employees were originally co-op placements, about 7 percent of the workers earned $2.50/hour or more, whereas in jobs with more former co-op employees, 33 percent of the workers earned $2.50/hour or more.

This general analysis suggests that (a) most co-op employees are underpaid relative to other employees; (b) most co-op employees are underpaid relative to the skill level required by the job; and (c) the companies that have had the most experience with cooperative employees are likely to pay them higher wages. Perhaps some of the pay disadvantage arises from the fact that co-op employees are, of necessity, part-time employees who are thought to occupy a different labor market than regular employees, even though they may perform the same kinds of work. As noted earlier, companies with only one co-op employee in a given job pay a generally lower though wider range of wages than those with more co-op employees. Rates of pay for many co-op jobs may be set on the basis of *ad hoc* decisions on the part of the employer. This may at least partly account for the pay differentials observed between the part-time co-op employees and full-time (perhaps better-organized) regular employees.

Work Performance and Costs of Cooperative Employees

Work Characteristics of Co-ops

In order to evaluate whether the cooperative employee is truly a "good buy" to the employer, it is necessary to evaluate both the quality of work performed and the cost per worker. A low-paid employee, for example, may actually be more expensive to an employer than a high paid employee if he or she produces work of inferior quality or quantity. Thus, while co-op employees are generally paid lower wages, we must examine the co-ops' work performance, as well as other costs, relative to regular, full-time employees in order to assess savings to the employer. Employers were asked to compare the work characteristics of co-op and regular employees in each of seven areas. The results are presented in Table 8-1.

TABLE 8-1

Comparison of Work Characteristics of Average Co-op Employees with Average Regular Employees

	Companies Reporting Work of Co-op Employees:					
	Better		No Difference		Worse	
Characteristic of Work	Number	Percent	Number	Percent	Number	Percent
Dependability	22	35	35	56	6	9
Cooperation, working with people	15	24	44	70	4	6
Quality of work	12	19	40	65	10	16
Proper use of equipment	8	13	45	71	10	16
Quantity of work, output	10	16	36	57	17	27
Technical knowledge	10	16	35	56	18	28
Communication skills	7	11	39	62	17	27

It can be seen that while the co-op employees tended to be rated as somewhat more dependable and cooperative than regular employees, they were also thought to lack specific knowledge and job skills. This is to be expected, since the co-ops' jobs are part of their vocational training. Although Table 8-1 reveals that employers found the quantity of work produced by co-ops to be somewhat below that of regular employees, the quality of their work was perceived to be slightly higher.

The employers' low regard for the communication skills of the co-op employees is somewhat surprising--more than twice as many companies reported co-ops' communication skills to be inferior to those of regular employees as vice-versa. Perhaps unfamiliarity with the jargon of the specific job situation could pose a slight communications barrier, but it is not altogether clear that it would influence employers' perceptions as strongly as is indicated in Table 8-1. It is possible that this rating reflects the widespread dissatisfaction with the basic reading and writing skills of students in today's schools.

In sum, Table 8-1 indicates that employers have mixed impressions of the work of co-op employees. Of the work characteristics listed, ratings of the first three (dependability, cooperation, and quality of work) tend to favor the co-op employee, and the last four (proper use of equipment, output, technical knowledge, and communication skills) tend to favor the regular employee. The regular employees' superiority in the last four characteristics is rather small, however, and may be equalized by the additional training that co-op employees sometimes receive. It seems likely that the overall quantity and quality of the work of co-op employees probably differs relatively little from that of regular employees.

Cross-Tabulations of Co-op Performance

In addition to the analysis presented in Table 8-1, several cross-tabulation analyses of co-op performance were also conducted. It seemed likely, for example, that the work quality of co-op employees would be positively related to the receipt of a grade for their work and to the frequency of visits made to the company by the school coordinator. To test these possibilities, cross-tabulations were made of worker quality according to whether the co-op employees received grades, the frequency of school coordinators' visits, and whether formal reports were made to the students' schools by supervisors. From these cross-tabulations, chi-squares were calculated to test whether the distribution of performance ratings of co-op employees differed according to grading and reporting precedures. The chi-square tests were not significant. There was no evidence that grading and other reporting measures significantly enhanced the job performance of co-op employees.

Also investigated was whether the performance of co-ops differed by industry. None of the respondents from the manufacturing and financial industries rated co-op employees better than regular employees in quality or quantity of work. In wholesale and retail trade and service industries, however, the respondents were more likely to rate co-ops higher than regular employees. In regard to quality of work, 25 percent rated the co-ops better, 63 percent said there was no difference, and only 12 percent rated the co-ops inferior to regular employees. Similarly, only 22 percent of the trade and service industry respondents rated the quantity of work performed by co-op employees inferior to that of regular employees--78 percent rated the quantity of work produced the same or greater.

Costs of Employing Co-ops

To get some idea of the types of costs employers incur with cooperative students, respondents were asked to estimate whether the average co-op student cost more, the same, or less than the average regular employee who did the same type of work in each of eleven areas. The results are summarized in Table 8-2.

TABLE 8-2

Comparison of Employee-Related Costs of Average Co-op Employees with Average Regular Employees

Employee-Related Cost (in order of increasing co-op costs)	Companies Reporting Co-op Employees					
	Cost More		No Difference		Cost Less	
	Number	Percent	Number	Percent	Number	Percent
Recruitment, hiring	0	0	29	48	32	52
Fringe benefits	0	0	30	50	30	50
Wages, salaries	1	2	34	55	27	43
Voluntary turnover of workers	3	5	38	67	16	28
Absenteeism, tardiness	3	5	39	64	19	31
Involuntary turnover of workers	3	5	47	84	6	11
Material wastage	7	11	52	84	3	5
Recordkeeping	10	17	43	74	5	9
Training, orientation	10	16	47	77	4	7
Scheduling work times	13	22	39	66	7	12
Supervision	16	27	39	66	4	7

It can be seen from the table that employers who hire cooperative students experience both cost advantages and disadvantages. A considerable proportion of firms regard co-op employees as costing less for the first six types of costs listed in the table and as costing more for the last five. Co-op employees appear to be relatively easy to recruit, demand relatively low pay (and fringe benefits), and exhibit little turnover or absenteeism. On the negative side, co-op employees are seen to entail higher costs for supervision, training, and paperwork. On balance, it would appear that overall costs for co-op employees are lower than those for regular employees. Several of the advantages of hiring co-op students to be discussed below related to cost savings that accrue to the firm in training the co-op students as future regular employees. These savings are probably not captured in the simple comparisons shown in Table 8-2. Also, given the importance of wages and salaries in a firm's profit and loss statement, the savings in this area above may outweigh other costs. Cooperative education programs thus appear to more than justify themselves to the employer on cost grounds.

Several cross-tabulations were performed to determine differences in the costs of hiring and training co-op employees. Costs were compared according to: (a) industry classification, (b) whether co-op employees rotated among various job tasks, and (c) the firm's geographic location.

Cross-Tabulations of Costs

A much higher percentage (57) of respondents in the manufacturing and construction industries said that co-op employees cost more to orient and train than did respondents in other industries. Given the technical nature of the work in these industries, this is not a surprising result. An additional significant difference across industries was noted for the cost of fringe benefits. As shown in Table 8-2, respondents indicated overall that the cost of fringe benefits for co-op employees was less than or equal to that of regular employees. When broken down by broad industry groups, however, an interesting heterogeneity arises. Only 22 percent of the wholesale and retail trade firms said that the cost of fringe benefits for co-op employees was less, compared to 79 percent for other industries. This difference may be largely a statistical artifact, representing the relatively limited range of fringe benefits available to all employees in this industry. Such an interpretation gains credence from the fact that no significant difference in wage costs was noted among these industries.

A chi-square test evaluated the additional costs or savings that resulted from rotating tasks of the co-op employees. Overall, the differences in costs when job tasks were rotated were not significant, but costs related to record-keeping and evaluation of performance were significantly higher. A similar analysis of costs by the location of the firms was not significant.

Advantages to the Employer

The questionnaire sent to the firms listed seven possible advantages to employers from participating in cooperative education programs. The respondents were asked to rank these in importance to their firms on a scale of one to seven, with a one indicating the most important advantage and a seven the least important. The results are presented in Table 8-3.

TABLE 8-3

Ranking of Possible Advantages to Employers from Cooperative Education

Advantage (in order of increasing mean)	Mean of Rankings	Mode of Rankings	Percent of Respondents Ranking this Advantage	
			Highest (1)	Lowest (7)
Facilitate evaluation of potential regular employees	3.28	3	20	5
Improves communication with and responsiveness of schools	3.58	2	16	10
Reduces costs of recruiting new employees	3.76	1	24	14
Shortens orientation and training time	3.87	2	14	13
Provides valuable community service	3.98	1	20	12
Reduces employee turnover	4.31	7	8	21
Good for public relations	4.77	7	3	23

The table suggests that cost-saving aspects may be perceived by business as the primary advantage of employing cooperative students. The four possible advantages with the highest mean rankings are directly or indirectly related to reducing hiring and training costs for the employer. The advantage whose mean rank was third--cooperative education reduces recruiting costs--most clearly addresses the cost issue. It was ranked as the most important advantage of cooperative education by the largest percentage (24) of the respondents. Facilitating the evaluation of potential regular employees, which had the highest mean rank, is also a clear cost advantage. Although the mode for this advantage is not particularly high (3), it was widely regarded as one of the more important; more than 85 percent of the respondents ranked it fifth or better. The social and public relations advantages of cooperative education programs were less highly regarded according to the rankings. "Provides valuable community service" and "Good for public relations" were fifth and seventh, respectively, according to their means. While the community service aspects were considered very important by some respondents (20 percent rated it most important), there was little consensus regarding its overall importance. "Good for public relations" was clearly the least important advantage according to most respondents. In general, these rankings suggest that most employers hire cooperative education students because of cost advantages rather than for altruistic or public relations reasons.

A chi-square analysis was performed in order to evaluate how perceptions of cooperative education varied according to the size and structure of the firms. It seemed probable that a branch of a large, publicly-owned firm would be more receptive than an independent company to a cooperative education program due to both its greater discretionary authority and concern for public relations. The advantage "Good for public relations" does differ at the .10 significance level between those respondents who represented independent companies and those who represented larger corporations. Whereas twenty-three of the thirty-two (72 percent) large corporations rated this among the top five advantages, only twelve of the thirty (40 percent) independent companies rated it that highly. Surprisingly, a significantly greater percentage of independent firms rated the advantage "Shortens orientation and training time" more highly than did branches of corporations. This may indicate that the independents are more likely to subsequently hire the co-ops as regular employees. Such an interpretation is supported by the advantage "Reduces costs of recruiting new employees" being ranked significantly higher (at the .10 level) by independent companies.

Chi-square analyses were also performed to determine differences in perceived advantages according to the size of the firm. The size of the firm was measured both in terms of the number of employees and sales for the location sampled and for the total organization represented by each plant. Significant differences were noted in perceptions of the advantage "Reduce costs of recruiting new employees," but only at the total organizational level (as opposed to the individual plant). In the case of employment, the advantage in question was rated relatively low by very small and very large companies (less than nine and more than 500 employees) and relatively high by intermediate sized companies. Viewing sales as a measure of firm size, a different and irregular pattern emerged. Most of the variation in this case occurred between the smallest sales category, $0 to $999,000, and larger companies. Of the eight companies in the lowest sales category, three rated "Reduces cost of recruiting new employees" as the most important advantage while four of the remaining five rated it the least important. Companies of other sizes rated this advantage of only medium importance.

Summary

Employers did not find cooperative student workers to be inferior or superior to their regular employees overall, but co-ops were seen to offer many advantages to the employer that tend to outweigh the disadvantages that are sometimes associated with hiring co-op students. A major advantage of employing co-op students is that they tend to be paid lower wages for performing the same work as regular employees. Regular employees were seen by employers to have superior technical and communications skills; cooperative employees were seen to be more dependable and to work better with others. Although co-ops entail higher costs for supervision, training, and paperwork, these are probably at least balanced by lower salary and fringe benefit requirements, coupled with reduced turnover and absenteeism. Moreover, employers found that participation in cooperative education programs can reduce recruitment costs and help them to evaluate potential regular employees. Although co-ops tend to be paid less than regular employees, firms which have had more experience with co-ops tend to pay them higher wages. Finally, employers in different industries rate some aspects of co-op costs and performance differently. For example, employers in wholesale and retail trade were more likely to rate the quantity and quality of work performed by cooperative employees highly than were representatives of other industries.

APPENDIXES

APPENDIX A
QUESTIONNAIRES AND CODES

The Pennsylvania
State University
University Park,
Pennsylvania

INSTITUTE FOR RESEARCH ON HUMAN RESOURCES

Appendix A-1

1855

STUDENT ATTITUDES, EXPERIENCES, AND CAREER PLANS

Directions: Your high school is cooperating in a nationwide study of student attitudes, experiences, and career plans. You have been selected as a representative of all other students in the eastern half of the United States who are in special kinds of programs. Your answers are important.

We hope you will answer every question. Most can be answered by placing an "X" or checkmark (✓) in the box that best reflects your own experiences or attitudes. There are no right or wrong answers. Your answers will be held in strict confidence and revealed to no one outside the research staff.

Please sign your name on the following line to indicate your willingness to take part in this study. Even after signing your name, you still may decline to answer any question you do not wish to answer or at any point you may decide not to continue any further.

Signed Name ______________________ Date ______________________

Printed Name ______________________ High School ______________________

Home Address ______________________ Telephone ______________________

PRIZE NUMBER ☐ PRIZE NUMBER

[CARD 1 2-7]

IMPORTANT INFORMATION

The number in this box enters you in the drawing for the prizes to be awarded to participants in this study. Make record of this number. If you are a winner, a check will be sent directly to your home. Be sure you have entered your correct home address.

CONFIDENTIAL: FOR RESEARCH USE ONLY

BACKGROUND INFORMATION

1. What is your age?
[8]
1 ☐ 15 or younger
2 ☐ 16 years of age
3 ☐ 17 years of age
4 ☐ 18 years of age
5 ☐ 19 years of age
6 ☐ 20 or older

2. What is your sex?
[9]
☐ Male 1
☐ Female 2

3. What grade are you in?
[10]
1 ☐ 9th grade
2 ☐ 10th grade
3 ☐ 11th grade
4 ☐ 12th grade

4. Are you currently taking any of the following kinds of courses? (If more than one, check major or main one.)
[11]
1 ☐ Business, office or commerical courses such as bookkeeping, stenography, office practice
2 ☐ Distributive education courses such as marketing, banking, wholesaling
3 ☐ Health courses such as medical-dental technician, nurses aide
4 ☐ Occupational home economics such as food service, interior decorating, child care
5 ☐ Trade and industrial courses such as auto mechanics, welding, carpentry
6 ☐ Technical courses such as electronics, industrial chemistry
7 ☐ Agricultural courses such as horticulture, crop production
8 ☐ Not taking any of these courses

5. How many brothers and sisters do you have?

	Brothers	Sisters
Older	______ [12]	______ [13]
Younger	______ [14]	______ [15]

6. What is the usual occupation of your father (or the male head of your household)? What kind of work does he usually do?
[16-17]
____
____
00 ☐ There is no male head of the household SKIP TO QUESTION 11
98 ☐ Father usually cannot work
99 ☐ I don't know

7. Approximately how many hours a week does your father (or male head of household) usually work? ______
[18-19]

8. Does your father (or male head) belong to a union?
[20]
☐ Yes 1
☐ No 2
☐ Don't know 3

9. What is the highest level of education your father (or male head) reached?
[21]
1 ☐ None, or some grade school
2 ☐ Completed grade school, 6th grade
3 ☐ Some high school (7-12), but not a graduate
4 ☐ Graduated from high school
5 ☐ Vocational or business school after high school
6 ☐ Some college, but not a graduate
7 ☐ Graduated from regular 4-year college
8 ☐ Graduate or professional school after college
9 ☐ I don't know

10. Does your father (or male head) do community work (such as Lions Club, volunteer fireman, Boy Scout leader, etc.)?
[22]
☐ No 0
☐ Yes → Approximately how many hours per week? _____

11. How many of the years that you have been
[23] in school has your mother (or the female head of your household) held a regular job outside of the house? (By "regular" we mean a full-time or part-time job at which she worked at least six months per year.)

0 ☐ There is no female head of household--SKIP to Question 16

9 ☐ Mother never held a regular job SKIP to Question 14

1 ☐ 1 to 2 years 4 ☐ 7 to 8 years

2 ☐ 3 to 4 years 5 ☐ 9 to 10 years

3 ☐ 5 to 6 years 6 ☐ 11 to 12 years

12. What is the usual occupation of your
[24-25] mother (or female head of household)?

____

____

13. Approximately how many hours a week does
[26-27] your mother (or female head of household) usually work? ______

14. What is the highest level of education
[28] your mother (or female head) reached?

1 ☐ None, or some grade school

2 ☐ Completed grade school, 6th grade

3 ☐ Some high school (7-12), but not a graduate

4 ☐ Graduated from high school

5 ☐ Vocational or business school after high school

6 ☐ Some college, but not a graduate

7 ☐ Graduated from a regular 4-year college

8 ☐ Graduate or professional school after college

9 ☐ I don't know

15. Does your mother (or female head) do com-
[29] munity work (such as Red Cross, hospital volunteer, or Girl Scout leader)?

☐ No ☐ Yes → Approximately how many
0 hours per week? _____

16. Does your family have a daily newspaper
[30] delivered to your home?

☐ Yes ☐ No
1 0

17. How many magazines does your family sub-
[31] scribe to?

☐ None ☐ 1 - 2 ☐ 3 - 4 ☐ 5 or more
0 1 2 3

How many books are there in your home
[32] (excluding encyclopedias)?

1 ☐ None, or very few (0-10)

2 ☐ A few books (11-25)

3 ☐ One bookcase full (26-100)

4 ☐ Two bookcases full (101-250)

5 ☐ Three or four bookcases full (251-500)

6 ☐ A room full--a library (501 or more)

19. How many rooms are there in your home?
[33] (Not counting bathrooms, unfinished areas)

☐ 2 or less ☐ 4 rooms ☐ 6 rooms

☐ 3 rooms ☐ 5 rooms ☐ 7 or more

20. Check all of the following items that your family has. (Check all that apply.)

1

[34] ☐ Automobile

[35] ☐ Automatic clothes washer

[36] ☐ Automatic clothes dryer

[37] ☐ Electric dishwasher

[38] ☐ Home food freezer (separate from refrigerator)

[39] ☐ Hi-fi or stereophonic set

[40] ☐ Desk at which you study

[41] ☐ Set of encyclopedias

[42] ☐ Telephone

INFLUENCES ON CHOICE OF COURSE OF STUDY

21. Listed below are a number of experiences that sometimes influence people when they choose what they want to study in high school. Please indicate whether or not you ever had such experiences. If you did, please indicate how much they helped you to make your choice by circling one of these responses after each one.

NA = Not at all helpful	? = Undecided don't know	Q = Quite helpful
L = A little helpful		VH = Very helpful

		No	Yes	How Helpful				
				1	2	3	4	5
a. [43]	Did you ever take a course about careers which showed what a variety of different occupations were like?	☐	☐ →	NA	L	?	Q	VH
b. [44]	Did you ever take a vocational interest test which indicated the kinds of jobs you were likely to find interesting?	☐	☐ →	NA	L	?	Q	VH
c. [45]	Did you ever take a vocational aptitude test which indicated the kinds of jobs you would find most suitable to your skills?	☐	☐ →	NA	L	?	Q	VH
d. [46]	Did you ever read material from the guidance department or library that described various occupations?	☐	☐ →	NA	L	?	Q	VH
e. [47]	Did your school conduct any programs or activities designed to describe to students what different courses of study were like?	☐	☐ →	NA	L	?	Q	VH
f. [48]	Did you ever discuss your choice of a course of study with other students?	☐	☐ →	NA	L	?	Q	VH
g. [49]	Did you ever discuss your choice with your parents?	☐	☐ →	NA	L	?	Q	VH
h. [50]	Did you ever discuss your choice with your brother, sister, or other relatives?	☐	☐ →	NA	L	?	Q	VH
i. [51]	Did you ever discuss your choice with teachers?	☐	☐ →	NA	L	?	Q	VH
j. [52]	Did you ever discuss your choice with a guidance counselor?	☐	☐ →	NA	L	?	Q	VH
k. [53]	Did you ever have a part-time or summer job that influenced your choice?	☐	☐ →	NA	L	?	Q	VH
l. [54]	Do you have any hobbies or leisure time activities that influenced your choice?	☐	☐ →	NA	L	?	Q	VH

SCHOOL EXPERIENCES AND ATTITUDES

22. What was the most important reason you
[55] chose the course of study you are now taking? (Check only one)

1 ☐ To be in same classes with friends
2 ☐ To prepare for employment
3 ☐ To prepare for college, business school, technical school, etc.
4 ☐ To satisfy parents
5 ☐ To study things of personal interest
6 ☐ To have easy courses
7 ☐ Followed suggestion of school
8 ☐ Undecided, don't know main reason
9 ☐ Other (Specify) ____________________

____

23. Please check all of the school organizations or clubs of which you are an active member. (Check all that apply)

[56] ☐ School newspaper, magazine or yearbook
[57] ☐ Intramural sports--which play other teams from your own school
[58] ☐ Interscholastic sports--which play teams from other schools, cheerleaders
[59] ☐ Student government--such as student council, class officer
[60] ☐ Musical, dramatic, or debating clubs, band, glee club
[61] ☐ Subject matter clubs--such as history, science, mathematics or language clubs
[62] ☐ Service clubs--such as Tri-Hi-Y, School Booster Club
[63] ☐ Hobby clubs--such as photography, model building, chess, car clubs
[64] ☐ Vocational clubs--such as VICA, DECA, FHA, FBLA, 4-H, etc.
[65] ☐ Other (Specify) ____________________

____

24. Overall, how well do you like school?
[66]

1 ☐ Like it very much
2 ☐ Like it
3 ☐ Neutral, neither like it nor dislike it
4 ☐ Dislike it
5 ☐ Dislike it very much

25. Which course or subject do you like the most?
[67] (Check only one)

1 ☐ English
2 ☐ Social studies, history
3 ☐ Mathematics courses
4 ☐ Science courses
5 ☐ Home economics courses
6 ☐ Industrial arts courses
7 ☐ Vocational courses
8 ☐ Physical education courses
9 ☐ Art and music courses
0 ☐ Other (What?) ____________________

26. Which course or subject do you like the least?
[68] (Check only one)

1 ☐ English
2 ☐ Social studies, history
3 ☐ Mathematics courses
4 ☐ Science courses
5 ☐ Home economics courses
6 ☐ Industrial arts courses
7 ☐ Vocational courses
8 ☐ Physical education courses
9 ☐ Art and music courses
0 ☐ Other (What?) ____________________

27. How good are your grades compared to
[69] other students?

1 ☐ Far above average

2 ☐ Above average

3 ☐ Slightly above average

4 ☐ Slightly below average

5 ☐ Below average

6 ☐ Far below average

28. How good a reader do you think you are
[70] compared to other students your age?

1 ☐ Far above average

2 ☐ Above average

3 ☐ Slightly above average

4 ☐ Slightly below average

5 ☐ Below average

6 ☐ Far below average

29. Since you have been in high school, how
[71] often has a teacher made you report to the principal or discipline office because you were misbehaving in class?

0 ☐ Never 2 ☐ 3 or 4 times

1 ☐ 1 or 2 times 3 ☐ 5 or more times

30. Since you have been in high school, have
[72] you ever been suspended from school (not allowed to attend for a few days) because you broke a school rule?

☐ No ☐ Yes → a. How many times? _____
0

31. Approximately how many days during this
[73] school year have you been truant (played "hooky")? (Remember all answers are confidential.)

0 ☐ None 3 ☐ 5 or 6 days

1 ☐ 1 or 2 days 4 ☐ 7 or 8 days

2 ☐ 3 or 4 days 5 ☐ 9 or more

32. Did you ever think seriously about dropping out of school?

☐ Yes ☐ No → SKIP to Question 33

a. What were the main reasons? (Check as many as apply)

[74] ☐ Marriage or pregnancy

[75] ☐ Conflict with teachers, school staff

[76] ☐ Poor grades

[77] ☐ Disliked school

[78] ☐ Needed money

[79] ☐ Friends dropped out

[80] ☐ Poor health

☐ Other (What?) ______________________

____

[CARD 2 2-7]

b. What caused you not to drop out? (Check as many as apply)

[8] ☐ Parents wouldn't let me

[9] ☐ Talks with counselor, teachers, other school staff

[10] ☐ Talks with friends

[11] ☐ Got a job while in school

[12] ☐ Grades improved

[13] ☐ Health improved

[14] ☐ Other (What?) ______________________

____

33. How much are you learning from the courses
[15] you are taking this year?

1 ☐ I am learning nothing

2 ☐ I am learning a little

3 ☐ I am learning an average amount

4 ☐ I am learning a lot

5 ☐ I am learning a great deal

34. How interesting are the courses you are
[16] taking this year?

1 ☐ Not at all interesting

2 ☐ A little interesting

3 ☐ Somewhat interesting

4 ☐ Quite interesting

5 ☐ Very interesting

35. How difficult is it to understand the
[17] material covered in your courses?

1 ☐ Very easy to understand

2 ☐ Easy to understand

3 ☐ A little hard to understand

4 ☐ Hard to understand

5 ☐ Very hard to understand

36. How hard do your teachers try to
[18] help you understand the material they cover?

1 ☐ Teachers try very hard

2 ☐ Teachers try hard

3 ☐ Teachers try a little

4 ☐ Teachers don't try very much

5 ☐ Teachers don't try at all

37. How much do your teachers encourage you
[19] to learn?

1 ☐ Very encouraging

2 ☐ Encouraging

3 ☐ Neutral, neither encouraging or discouraging

4 ☐ Discouraging

5 ☐ Very discouraging

38. How useful will the things you are studying
[20] be when you leave high school?

1 ☐ Not at all useful

2 ☐ A little useful

3 ☐ Somewhat useful

4 ☐ Quite useful

5 ☐ Very useful

39. How useful are the things you are studying
[21] to you right now?

1 ☐ Not at all useful

2 ☐ A little useful

3 ☐ Somewhat useful

4 ☐ Quite useful

5 ☐ Very useful

40. How friendly are other students toward you?
[22]

1 ☐ Very friendly

2 ☐ Friendly

3 ☐ Neutral, neither friendly or unfriendly

4 ☐ Unfriendly

5 ☐ Very unfriendly

41. How often do you feel other students "look
[23] down" on you because of the courses you are taking?

1 ☐ Very often

2 ☐ Often

3 ☐ Sometimes

4 ☐ Rarely

5 ☐ Never

42. Do you ever feel teachers "look down" on
[24] you because of the courses you are taking?

☐ Yes 1 ☐ No 2 ☐ Undecided 3

43. During this school year have you taken
[25] any courses that train you to obtain employment in regular occupations?

0 ☐ Took no such courses → SKIP to Question 47

1 ☐ Presently taking such courses

2 ☐ Took such courses but not in any at present

44. What is the title of the course(s) you are
[26-29] (were) taking? ______________________

____

____

45. Approximately how many total hours per
[30] week do (did) you spend in class for these course(s)?

1 ☐ 3 hours or less

2 ☐ 4 to 6 hours

3 ☐ 7 to 9 hours

4 ☐ 10 to 12 hours

5 ☐ 13 to 15 hours

6 ☐ 16 or more hours

46. Have you encountered any problems or dif-
[31] ficulties in these course(s)? (Check all that apply)

1 ☐ Lack of background in area

2 ☐ Course material is boring, uninteresting

3 ☐ Difficult subject matter

4 ☐ Too much work required

5 ☐ Attitude of teachers

6 ☐ Attitude of other students

7 ☐ Treated differently from other students

8 ☐ Other (What?) ______________________

____

9 ☐ No problems or difficulties

47. How hard do you think your school is trying
[32] to give you the preparation you will need when you leave school?

1 ☐ School is trying very hard

2 ☐ School is trying hard

3 ☐ School is trying a little

4 ☐ School is not trying very much

5 ☐ School is not trying at all

48. How hard are you, yourself, trying to get
[33] the preparation you will need when you leave school?

1 ☐ I am trying very hard

2 ☐ I am trying hard

3 ☐ I am trying a little

4 ☐ I am not trying very much

5 ☐ I am not trying at all

49. Overall, how satisfied are you with the
[34] education you are receiving in your courses?

1 ☐ Very satisfied

2 ☐ Satisfied

3 ☐ Neutral, neither satisfied or dissatisfied

4 ☐ Dissatisfied

5 ☐ Very dissatisfied

50. If you had it to do over again, would you
[35] choose these courses again?

☐ Yes 1 ☐ No 2 ☐ Undecided 3

51. Would you recommend these courses to other
[36] students?

☐ Yes 1 ☐ No 2 ☐ Undecided 3

EMPLOYMENT EXPERIENCES

52. During this school year, since September 1974, have you had a regular job? (By "regular job" we mean one you worked at outside your home, for five hours or more per week, for one month or longer. This includes voluntary jobs for which you aren't paid.)

☐ Yes ↓ ☐ No → SKIP to Question 74 0

[37] How many such jobs have you had this year? ________ jobs

[38] How many months of this school year have you had a job? ______ months

[39] Do you have a job at the present time?

1 ☐ Yes
2 ☐ No

} Answer the following questions for your current or most recent job.

53. What do (did) you do on this job, what [40-45] are (were) your main duties? ____________

54. What kind of business or organization do [46-47] you work for? That is, what does the organization make or do? ____________

55. When did you start working on this job?

_____ / _____ / _____
Month Day Year

56. When did you stop working at this job? [48-50]

_____ / _____ / _____
Month Day Year

☐ Still working at job

57. How many hours per week do (did) you [51-52] usually work? _____ hours per week

58. What was your starting wage or salary? [53-55] (Before any deductions for taxes, Social Security, etc.)

$__________ per hour/week (Circle one)

☐ Job is voluntary, not paid → SKIP to Question 63

59. What is your current (or last) wage or salary? [56-58] (Before deductions)

$________ per hour/ week (Circle one)

60. Since September 1974 to the present, approximately how much total money have you [59-62] earned?

$__________ total earnings

61. How much of the work you do (did) is also [63] done by regular, full-time employees?

1 ☐ All of the work I do is also done by full-time employees
2 ☐ Most of the work I do is also done by full-time employees
3 ☐ About half of the work I do is also done by full-time employees
4 ☐ A little of the work I do is done by full-time employees
5 ☐ None of the work I do is also done by full-time employees

62. How does your rate of pay compare to that [64] of full-time employees who do the same kind of work?

1 ☐ My pay rate is higher than full-time employees
2 ☐ My pay rate is the same as full-time employees
3 ☐ My pay rate is lower than full-time employees
4 ☐ I don't know the pay rate of full-time employees
5 ☐ No full-time employees do the work I do

63. How did you find out this job was
[65] available?

1 ☐ From a friend, member of family
2 ☐ Contacted employer directly
3 ☐ From school-placement office, coordinator, or teacher
4 ☐ Answered an advertisement
5 ☐ State employment service
6 ☐ Private employment agency
7 ☐ Other (How?) ____________________

64. How well have the things you studied
[66] in high school prepared you for this job?

1 ☐ Very good preparation
2 ☐ Good preparation
3 ☐ Fair preparation
4 ☐ Poor preparation
5 ☐ Very poor preparation
6 ☐ Things I study are not related to this kind of job

How often do (did) you use the things you
[67] study in school on this job?

1 ☐ All the time
2 ☐ Most of the time
3 ☐ About half the time
4 ☐ Some of the time
5 ☐ None of the time

How many things have you learned on
[68] this job that you have not studied in school?

1 ☐ Very many things
2 ☐ Many things
3 ☐ A few things
4 ☐ Very few things
5 ☐ Nothing

67. How well do (did) you like this job?
[69]

1 ☐ Like it very much
2 ☐ Like it
3 ☐ Neutral, neither like it nor dislike it
4 ☐ Dislike it
5 ☐ Dislike it very much

68. Would you like to continue in this job after
[70] you leave high school?

☐ Yes 1 ☐ No 2 ☐ Undecided 3

69. Is (was) there someone from your school,
[71] a coordinator, who should visit you and your employer on this job?

☐ Yes 1 ☐ No 0 → SKIP to Question 73

70. How ofter does (did) your coordinator visit
[72] you at your job?

1 ☐ Once a week or more
2 ☐ Once every two or three weeks
3 ☐ Once a month
4 ☐ Less than once a month
5 ☐ Never visits

71. How well does your coordinator understand
[73] you and know the kinds of things you like to do?

1 ☐ Understands me very well
2 ☐ Understands me well
3 ☐ Understands me somewhat
4 ☐ Understands me a little
5 ☐ Doesn't understand me at all

72. How helpful is your coordinator when you
[74] have a problem?

1 ☐ Very helpful
2 ☐ Quite helpful
3 ☐ Somewhat helpful
4 ☐ A little helpful
5 ☐ Not at all helpful

73. Listed below are some possible effects of holding a job while you are in school. Please indicate, by checking Yes or No, if your job(s) had any of these effects on you.

			Yes 1	No 2	Undecided 3
[75]	a.	Does holding a job cause you to get lower grades?	☐	☐	☐
[76]	b.	Does holding a job help you to get better grades?	☐	☐	☐
[77]	c.	Does holding a job make it harder to find time to study?	☐	☐	☐
[78]	d.	Do you like school better when you have a job?	☐	☐	☐
[79]	e.	Does holding a job make your courses more interesting?	☐	☐	☐
[80]	f.	Does holding a job help you to apply the things you study in school?	☐	☐	☐
[CARD 3 2-7]					
[8]	g.	Does holding a job make it harder to take part in school activities such as clubs and sports?	☐	☐	☐
[9]	h.	Has holding a job helped you to decide what you want to do after you leave high school?	☐	☐	☐
[10]	i.	Does holding a job cause you to feel you are less a part of the the school than the full-time students?	☐	☐	☐
[11]	j.	Do you think having a job has helped you to continue in school, not drop out?	☐	☐	☐
[12]	k.	Has holding a job helped you to learn how to get along with people?	☐	☐	☐
[13]	l.	Does holding a job help you to understand better the things you study in school?	☐	☐	☐
[14]	m.	Do you think you get along better with your teachers when you have a job?	☐	☐	☐
[15]	n.	Has holding a job caused you to have less contact with your friends?	☐	☐	☐
[16]	o.	Has holding a job taught you job skills you did not learn in school?	☐	☐	☐
[17]	p.	Has holding a job increased your confidence in yourself?	☐	☐	☐
[18]	q.	Does holding a job make it harder to do your chores at home? . . .	☐	☐	☐
[19]	r.	Does holding a job make you wish you were done with school and working full-time?	☐	☐	☐

INFORMATION ABOUT JOBS

74. This section is a little different than the others. We would like to find out if you know the kinds of work that people in certain jobs usually do. For each job listed there are three descriptions of job duties. Please indicate the description you think best fits each job. Be sure to read all three possible answers before you decide.

[20] a. ACETYLENE WELDER

1 ☐ Builds wooden crates to hold tanks of acetylene gas

2 ☐ Uses a gas torch to cut metal or join pieces of metal together

3 ☐ Operates a machine that stitches the soles to the upper parts of shoes

4 ☐ Don't know

[21] b. ASSEMBLER

1 ☐ Puts together and fixes machines used on an assembly line

2 ☐ Takes broken parts off an assembly line and sends them to scrap area

3 ☐ Works on a production line putting parts together

4 ☐ Don't know

[22] c. BANK TELLER

1 ☐ Checks bank records

2 ☐ Talks to persons who want to borrow money

3 ☐ Receives and pays out money in a bank

4 ☐ Don't know

[23] d. DEPARTMENT STORE BUYER

1 ☐ Selects the items to be sold in a section of a department store

2 ☐ Checks on the courtesy of sales people by shopping at the store

3 ☐ Buys department stores that are about to go out of business

4 ☐ Don't know

[24] e. DIETICIAN

1 ☐ Waits on tables in a restaurant

2 ☐ Suggests exercises for persons who are overweight or sick

3 ☐ Plans menus for hospitals and schools

4 ☐ Don't know

[25] f. DRAFTSMAN

1 ☐ Makes scale drawings of products or equipment for engineering or manufacturing purposes

2 ☐ Mixes and serves drinks in a bar or tavern

3 ☐ Pushes or pulls a cart in a factory or warehouse

4 ☐ Don't know

[26] g. ECONOMIST

1 ☐ Prepares menus in a hospital, hotel, or other such establishment

2 ☐ Does research on such matters as general business conditions, unemployment, etc.

3 ☐ Assists a chemist in developing chemical formulas

4 ☐ Don't know

[27] h. FORK LIFT OPERATOR

1 ☐ Operates a machine that makes a certain kind of agricultural tool

2 ☐ Operates a freight elevator in a warehouse or factory

3 ☐ Drives an electrical or gas powered machine to move material in a warehouse or factory

4 ☐ Don't know

[28] i. HOSPITAL ORDERLY

1 ☐ Helps to take care of hospital patients

2 ☐ Orders food and other supplies for hospital kitchens

3 ☐ Works at hospital desk where patients check in

4 ☐ Don't know

[29] j. KEYPUNCH OPERATOR

1 ☐ Operates a machine which sends telegrams

2 ☐ Operates a machine which punches holes in cards used in computers

3 ☐ Operates a cordless telephone switchboard and pushes switch keys to make telephone connections

4 ☐ Don't know

[30] k. MACHINIST

1 ☐ Makes adjustments on automobile, airplane, and tractor engines

2 ☐ Repairs electrical equipment

3 ☐ Sets up and operates metal lathes, shapers, grinders, buffers, etc.

4 ☐ Don't know

[31] l. MEDICAL ILLUSTRATOR

1 ☐ Draws pictures of medical uniforms for use in ads

2 ☐ Teaches medical students correct operating procedures

3 ☐ Draws pictures that are used to teach anatomy and surgical operating procedure

4 ☐ Don't know

[32] m. NURSES' AID

1 ☐ Teaches nurses how to take care of patients

2 ☐ Tests blood samples of hospital patients

3 ☐ Serves food to hospital patients and performs other duties to make patients comfortable

4 ☐ Don't know

[33] n. QUALITY CONTROLLER IN BAKERY

1 ☐ Finds out if packages of pastries are the proper weight

2 ☐ Tells bakers what to do

3 ☐ Keeps records of how much bread is sold

4 ☐ Don't know

[34] o. SOCIAL WORKER

1 ☐ Conducts research on life in primitive societies

2 ☐ Writes newspaper stories on marriages, engagements, births, and similar events

3 ☐ Works for a welfare agency and helps people with various types of problems they may have

4 ☐ Don't know

[35] p. STATIONARY ENGINEER

1 ☐ Works at a desk, making drawings and solving engineering problems

2 ☐ Drives a locomotive that moves cars around in a freight yard

3 ☐ Operates and maintains such equipment as steam boilers and generators

4 ☐ Don't know

[36] q. STATISTICAL CLERK

1 ☐ Solves business problems using a computer

2 ☐ Makes calculations with adding machines or a desk calculator

3 ☐ Prepares bills and statements for customers

4 ☐ Don't know

FUTURE PLANS

75. [37] What are your main plans for when you leave high school? (Not including part-time or summer plans. For example, if you plan to attend college full-time and work part-time, check attend college. If you plan to work in the summer and then go into military service, check military service.)

1 ☐ Get a full-time job

2 ☐ Attend vocational, technical or business school full-time

3 ☐ Attend college full-time

4 ☐ Go into military service

5 ☐ Be a housewife

6 ☐ Other (Specify) ____________

7 ☐ Undecided → SKIP to Question 76

[38] a. How sure are you that this is what you will do?

1 ☐ Very sure

2 ☐ Quite sure

3 ☐ Somewhat sure

4 ☐ A little sure

5 ☐ Not at all sure

76. [39-40] What kind of job do you hope to get after you finish your education? ____________

____

☐ Undecided → SKIP to Question 78

[41] a. How sure are you that this is the kind of work you want to do?

1 ☐ Very sure

2 ☐ Quite sure

3 ☐ Somewhat sure

4 ☐ A little sure

5 ☐ Not at all sure

77. What kind of problems do you think you may have getting the kind of job you want? (Check all that apply.)

1

[42] ☐ May not be able to meet requirements such as grades, test scores, etc.

[43] ☐ Many others seeking same jobs

[44] ☐ May have to leave this area

[45] ☐ May not be able to pay for additional education, training

[46] ☐ May not be able to pay for necessary tools, equipment

[47] ☐ Expect no problems

[48] ☐ Other (What?) ____________

[49] ☐ Don't know if I will have any problems

78. How much money per week do you think you will be making one year and five years after you finish your education?

	a. One year [50]	b. Five years [51]	
1	☐	☐	$100 or less
2	☐	☐	$101 to 140
3	☐	☐	$141 to 180
4	☐	☐	$181 to 220
5	☐	☐	$221 to 260
6	☐	☐	$261 to 300
7	☐	☐	$301 to 340
8	☐	☐	$341 or more
9	☐	☐	No idea, can't estimate

79. [52-53] If you could do anything in the world of work that you wanted to, what would you most like to do? ____________

____

OPINIONS ABOUT ONE'S SELF

80. Listed below are some statements of how people feel about themselves. Indicate the degree to which you agree or disagree with the following statements by circling one of these responses after each one.

SA = Strongly Agree
A = Agree
? = Undecided
SD = Strongly Disagree
D = Disagree

			1	2	3	4	5
[54]	a.	I am able to do things as well as most other people.	SA	A	?	D	SD
[55]	b.	I have always felt pretty sure my life would work out the way I wanted it to	SA	A	?	D	SD
[56]	c.	I take a positive attitude toward myself	SA	A	?	D	SD
[57]	d.	I would rather decide things when they come up than always try to plan ahead	SA	A	?	D	SD
[58]	e.	All in all, I am inclined to feel that I am a failure	SA	A	?	D	SD
[59]	f.	I feel I do not have much to be proud of	SA	A	?	D	SD
[60]	g.	I nearly always feel pretty sure of myself even when people disagree with me	SA	A	?	D	SD
[61]	h.	I seem to be the kind of person that has more bad luck than good luck	SA	A	?	D	SD
[62]	i.	I feel that I have a number of good qualities	SA	A	?	D	SD
[63]	j.	I wish I could have more respect for myself	SA	A	?	D	SD
[64]	k.	I never have any trouble making up my mind about important decisions	SA	A	?	D	SD
[65]	l.	There's not much use for me to plan ahead because there's usually something that makes me change my plans	SA	A	?	D	SD
[66]	m.	I have often had the feeling that it's no use to try to get anywhere in this life.	SA	A	?	D	SD
[67]	n.	At times I think I am no good at all	SA	A	?	D	SD
[68]	o.	I certainly feel useless at times	SA	A	?	D	SD
[69]	p.	I have always felt that I have more will power than most people have	SA	A	?	D	SD
[70]	q.	I feel that I'm a person of worth, at least on an equal plane with others	SA	A	?	D	SD

THANK YOU VERY MUCH FOR
YOUR COOPERATION

Appendix A-2

The Pennsylvania State University
Institute for Research on Human Resources
University Park, Pennsylvania

1855

[Card 1 2-7]

HIGH SCHOOL AND AFTER

A STUDY OF HIGH SCHOOL EDUCATION AND POST-HIGH SCHOOL EXPERIENCES

CONFIDENTIAL: FOR RESEARCH USE ONLY

Directions: This questionnaire is about your high school education and your experience since leaving high school. It also contains some questions about your mother and father.

Most questions can be answered by putting an "X" or checkmark (✓) in the box that best reflects your own experiences or attitudes. You may decline to answer any question.

Please sign your name on the following line to indicate your willingness to participate in the study.

Signed Name ______________________

Date ______________________

Are you willing to have your high school release to Penn State your grade point average and an IQ or similar test score?

☐ Yes ☐ No

BACKGROUND INFORMATION

---

1. What is your age? ______ [8-9]

2. [10] What is your sex?

☐ Male 1 ☐ Female 2

3. What month and year did you graduate (or leave) high school?

Month ______________ [11-12] Year ________ [13-14]

a. [15] How good were your high school grades compared to other students?

1 ☐ Well above average

2 ☐ Slightly above average

3 ☐ Slightly below average

4 ☐ Well below average

4. [16-17] When you were in school, what was the usual occupation of your father (or the male head of your household)? What kind of work did he usually do?

____

____

00 ☐ While I was in school there was no male head of household

98 ☐ Father usually could not work while I was in school

99 ☐ I don't know

5. [18] How many of the years while you were in school did your mother (or the female head of your household) have a regular job outside the house? (By "regular" we mean a full-time or part-time job at which she worked at least six months per year.)

☐ 1 to 2 years 1 ☐ 7 to 8 years 4

☐ 3 to 4 years 2 ☐ 9 to 10 years 5

☐ 5 to 6 years 3 ☐ 11 to 12 years 6

☐ 0 While I was in school there was no female head of household. SKIP to Question 7

☐ 9 Mother never held a regular job SKIP to Question 7

6. [19-20] What was the usual occupation of mother (or female head of household) while you were in school?

____

____

7. What is the highest level of education your father (or male head) and mother (or female head) reached?

Father [21]
Mother [22]

1 ☐ ☐ None, or some grade school
2 ☐ ☐ Completed grade school, 6th grade
3 ☐ ☐ Some high school (7-12), but not a graduate
4 ☐ ☐ Graduated from high school
5 ☐ ☐ Vocational or business school after high school
6 ☐ ☐ Some college, but not a graduate
7 ☐ ☐ Graduated from regular 4-year college
8 ☐ ☐ Graduate or professional school after college
9 ☐ ☐ I don't know

HIGH SCHOOL EXPERIENCES

---

8. [23] While you were in high school did you take any courses that trained you to obtain employment in regular occupations?

1 ☐ Yes   0 ☐ No → SKIP to Question 9

a. [24-27] What was the title(s) of the course(s) you took?

____

____

9. [28] Were you a co-op or work-study student (part-time school and part-time work) in high school?

1 ☐ Yes   0 ☐ No → SKIP to Question 10

a. [29] Did you continue with the employer you worked for in high school after you left school?

1 ☐ Yes   0 ☐ No → SKIP to Question 10

b. [30] Are you still with this employer?

1 ☐ Yes   0 ☐ No

c. How long did you stay with this employer?

____ years [31] ____ months [32-33]

10. [34] What was the most important reason you chose the course of study you took in high school? (Check only one)

1 ☐ To be in same classes with friends
2 ☐ To prepare for employment
3 ☐ To prepare for college, business school, technical school, etc.
4 ☐ To satisfy parents
5 ☐ To study things of personal interest
6 ☐ To have easy courses
7 ☐ Followed suggestion of school
8 ☐ Undecided, don't know main reason
9 ☐ Other (Specify) ______________

____

11. How hard do you think your school tried to give you the preparation you needed when you left school?
[35]

- 1 ☐ School tried very hard
- 2 ☐ School tried hard
- 3 ☐ School tried a little
- 4 ☐ School did not try very much
- 5 ☐ School did not try at all

12. How hard did you, yourself, try to get the preparation you needed when you left school?
[36]

- 1 ☐ I tried very hard
- 2 ☐ I tried hard
- 3 ☐ I tried a little
- 4 ☐ I did not try very much
- 5 ☐ I did not try at all

13. Overall, how satisfied are you with the education you received in high school?
[37]

- 1 ☐ Very satisfied
- 2 ☐ Satisfied
- 3 ☐ Neutral, neither satisfied nor dissatisfied
- 4 ☐ Dissatisfied
- 5 ☐ Very dissatisfied

14. If you had it to do over again, would you choose the courses you took again?
[38]

☐ Yes 1 ☐ No 2 ☐ Undecided 3

POST-HIGH SCHOOL EXPERIENCES

---

15. Since you have been out of high school, how many months have you--

	Months
a. Worked at a full-time job (35 hours or more a week)?	______ [39-40]
b. Attended school or college full-time?	______ [41-42]
c. Been unemployed and looking for work?	______ [43-44]
d. Been on active duty with the military?	______ [45-46]
e. Not had a job because you were keeping house?	______ [47-48]
f. Been unable to work due to sickness or injury?	______ [49-50]

16. What were you doing most of last week? (Check only one.)
[51]

- 1 ☐ Working at a full-time job (35 hours or more a week)
- 2 ☐ Working at a part-time job
- 3 ☐ On temporary lay-off from a job
- 4 ☐ Looking for work
- 5 ☐ Going to school
- 6 ☐ Serving in the military
- 7 ☐ Keeping house
- 8 ☐ Unable to work because of illness, injury
- 9 ☐ Other (What?) ______________________

____

17. Please answer these questions for each of these jobs ⟶ If any of the jobs are the same, check the appropriate box and put your answers in only one column.	First Regular Job After High School	Job Held for Longest Time	Current or Most Recent Job
	(One you expected to keep, not a seasonal or part-time job.)	[74] 1 ☐ Same as first job	[24] 1 ☐ Same as first job 2 ☐ Same as longest job
a. What is (was) this job called?	[52-53]	[75-76]	[25-26]
b. What are (were) your main tasks on this job; what do (did) you do most of the time?	[54, 55]	[77, 78]	[27, 28]
c. What does (did) the employer you worked for make or do?	[56-57]	[79-80]	[29-30]
d. What month and year did you start and leave this job?	[58-59] Start:Mo__ Yr__ Leave:Mo__ Yr__	[Card 2 2-7] [8-9] Start:Mo__ Yr__ Leave:Mo__ Yr__	[31-32] Start:Mo__ Yr__ Leave:Mo__ Yr__
e. How did you find out this job was available?	[60]	[10]	[33]
f. What was your total starting and leaving (or current) wage or salary before any deductions for taxes, social security, etc.? If you received tips or other pay, estimate what you averaged.	[61-64] Starting: $__________ hour/week/month (circle one) Leaving: [65-68] $__________ hour/week/month	[11-14] Starting: $__________ hour/week/month (circle one) Leaving: [15-18] $__________ hour/week/month	[34-37] Starting: $__________ hour/week/month (circle one) Leaving: [38-41] $__________ hour/week/month
g. How many hours a week do (did) you usually work?	[69-70] ___hours per week	[19-20] ___hours per week	[42-43] ___hours per week
h. How related is (was) this job to the occupational area you studied in high school? ☐ Did not study an occupational area in high school 9	[71] 1 ☐ Same as area 2 ☐ Highly related 3 ☐ Slightly 4 ☐ Not at all	[21] ☐ Same as area ☐ Highly related ☐ Slightly ☐ Not at all	[44] ☐ Same as area ☐ Highly related ☐ Slightly ☐ Not at all

Question 17 continued on next page

17. (Continued)	First Regular Job After High School	Job Held for Longest Time	Current or Most Recent Job
i. How well did your high school training prepare you for this job?	[72] 1 ☐ Excellent preparation	[22] ☐ Excellent preparation	[45] ☐ Excellent preparation
	2 ☐ Good preparation	☐ Good preparation	☐ Good preparation
9 ☐ High school courses did not include training for jobs	3 ☐ Fair preparation	☐ Fair preparation	☐ Fair preparation
	4 ☐ Poor or no preparation	☐ Poor or no preparation	☐ Poor or no preparation
j. Overall how satisfied are (were) you with this job? How well do (did) you like it?	[73] 1 ☐ Very satisfied	[23] ☐ Very satisfied	[46] ☐ Very satisfied
	2 ☐ Satisfied	☐ Satisfied	☐ Satisfied
	3 ☐ Dissatisfied	☐ Dissatisfied	☐ Dissatisfied
	4 ☐ Very dissatisfied	☐ Very dissatisfied	☐ Very dissatisfied

18. [47] Did you ever take any educational or training programs after high school?

1 ☐ Yes 0 ☐ No → SKIP to 19

[48] a. Where did you take the training?

1 ☐ Employer, place of work

2 ☐ Community, 2-year college

3 ☐ 4-year college or university

4 ☐ Private business or technical school

5 ☐ Area vo-tech school

6 ☐ Military service

7 ☐ Other (Where?) ______________

[49-50] b. How many months did you take the program? ________

[51] c. How much of the program did you complete?

1 ☐ All of it

2 ☐ Almost all

3 ☐ More than half

4 ☐ About one-half

5 ☐ Less than one-half

6 ☐ Less than one-quarter

[52] d. Are you still attending the program?

1 ☐ Yes 2 ☐ No 3 ☐ Summer vacation

[53-54] e. What did the program train or prepare you for? ____________

____

FUTURE PLANS

19. What do you think you will be doing one year from now?

[55-56] ☐ Working → What kind of job?

____

[57-59] ☐ Attending school, college → What will you be studying? __________

____

[60] ☐ In military service

[61] ☐ Keeping house

[62-63] ☐ Other (What?) ________________

[64] ☐ Undecided, don't know

20. How much money per week do you
[65, 66] think you will be making one year and five years from now?

One Year	Five Years	
1 ☐	☐	$100 or less
2 ☐	☐	$101 to 140
3 ☐	☐	$141 to 180
4 ☐	☐	$181 to 220
5 ☐	☐	$221 to 260
6 ☐	☐	$261 to 300
7 ☐	☐	$301 to 340
8 ☐	☐	$341 or more
9 ☐	☐	No idea, can't estimate

21. If you could do anything in the
[67-68] world of work that you wanted to, what would you most like to do?

____

Appendix A-3

Work Experience--Vocational Course Code

01 General-academic
02 College preparatory
Work experience courses not directly linked with a specific vocational area

03 Work-study, work experience (n.e.c.)
04 Job entry (n.e.c.)
(Note: In ______ there are job entry occupations under each of the vocational areas. If area not indicated in Q4 use this in ______ also.)
05 NYC (Neighborhood Youth Corps)
06 SET (Selected Employment Trainee)
IWE (Individualized Work Experience)
07 JN ROTC
08 Industrial arts, general vocational (small schools)

10 Business, office, commercial (n.e.c.)

11 Accounting, bookkeeping, record keeping
12 Clerk-typist (General clerical, office/clerical practice)
13 Data processing
14 Office machines
15 Stenography (shorthand, dictation, transcription)
16 Typing
17 Specialized business courses (law, finance, administration, personnel)
18 Academic instruction related to area (English, math, science)
19 Job entry--business

(NOTE: If more than two courses in this area are listed and one is stenography or shorthand, be sure to code 15)

20 Distributive Education (DECA) n.e.c.

21 Advertising, sales promotion
22 Banking, finance, insurance, real estate
23 General merchandising, retailing, wholesaling
24 Marketing
25 Specialized (floristry, automotive, hotel-motel, hardware, transportation)
28 Academic related to area
29 Job entry--DE

30 Health (n.e.c.)

31 Dental assistant (dentist office)
32 Dental technician (laboratory)
33 Health/medical assistant (physician office) (medical secretary, medical office practices)
34 Medical technician (laboratory)
35 Nursing (practical nursing, nurse aide)
36 Specialized (ophthalmic, radiological, rehabilitation)
38 Academic related to area
39 Job entry--health

40 Home economics, occupation (n.e.c.)
(Note: Do not code courses such as homemaking, family living, consumer education, food preparation, etc. The courses coded in the categories below should be those designed to train students in employable skills.)

- 41 Baking (commercial)
- 42 Child care, guidance
- 43 Clothing management, textiles, commercial sewing
- 44 Food services (science), food management
- 45 Home furnishings equipment service (upholstery)
- 46 Institutional management
- 48 Academic related to area
- 49 Job entry--home economics

TRADE AND INDUSTRIAL COURSES VICA

50 Trade and industry (n.e.c.) (woods)

51 Appliance--electricity group (n.e.c.)

- 52 Appliance repair
- 53 Air conditioning and refrigeration
- 54 Electric power (lines, motors, generators)
- 55 Industrial electricity
- 56 Radio-TV

(Note: This group does not include electric wiring which is code 64 under construction and maintenance.)

57 Automotive group (n.e.c.)

- 58 Auto body
- 59 Auto mechanics
- 60 Auto service (service station attendant)
- 61 Small (gas) engine repair

62 Construction, maintenance group (n.e.c.)

- 63 Carpentry
- 64 Electric wiring
- 65 Maintenance repair
- 66 Masonry (bricklaying)
- 67 Plumbing

(Note: This group does not include construction technology which is code 82 under technical occupations.)

68 Metal working group (n.e.c.)

- 69 Machine operation
- 70 Ornamental metal fabrication
- 71 Sheetmetal (heating--ventilating)
- 72 Welding

73 Cabinetry (millwork, furniture)

74 Commercial art (photography)

75 Cosmetology (barbering)

76 Printing

78 Academic related to area

79 Job entry--T&I
(Note: If it is not clear from the answer to Q 44 whether the student should be classified in a T&I or technical code, make the following cross checks in the order listed: (1) check student's response to Q 4 and code to agree with student, (2) if Q 4 is not helpful, check the student record card as to school program, (3) if school program not helpful, check IQ: Students with IQ of 110 or above code technical; (4) if no IQ score, code under appropriate T&I code.

80 Technical (n.e.c.)

81 Chemical
82 Construction
83 Drafting and design (mechanical drawing)
84 Electronic
85 Environmental
86 Mechanical
87 Other specialized (aerospace, human service, public service, industry management)
88 Academic related to area
89 Job entry--technical

90 Agriculture (n.e.c.)

91 Agricultural production
92 Agricultural mechanics (machinery)
93 Horticulture
94 Specialized (agricultural supplies, products, resources, forestry)
98 Academic related to area
99 Job entry--agriculture

Appendix A-4

Two-Digit Vocational Education Related Occupational Code

Occupations not directly related to specific vocational areas

(Note: Use these categories only if it is not possible to code an occupation reasonably under a voc. ed. area.)

01 Unskilled work, typical "young person" jobs (manual labor, pinboy in bowling alley, parking attendant)
02 People oriented professional (lawyers, teachers, social worker, clergy, etc.)
03 Journalism, reporter, broadcaster
04 Scientific professional (physical or social)
05 Entertainer, athelete
06 Military service
09 Professional level, proprietor (n.e.c.)

10 Business, office, commercial (n.e.c.)

11 General office worker (clerk, receptionist)
12 Typist
13 Secretary, stenographers
14 Bookkeeper, record processor, billing clerk, filing
15 Data processing (keypuncher, computer operator)
16 Office machine operators, telephone operator
17 Bankteller, cashier
19 Professional level, proprietor, accountant, auditor

20 Distributive Education (n.e.c.)

21 Retail-Wholesale (sales clerk, n.e.c.)
22 Grocery (bag boy, stocker, checker, produce man)
23 Apparel, footware
24 Department store, catalog sales
25 Speciality (florists, gift shops, hardware, furniture)
26 Solicitor (telephone, door-to-door)
27 Delivery man, truck driver (n.e.c.)
28 Insurance, finance, real estate
29 Professional level, proprietor
(Note: This category does not include service station attendant which is coded 60 or agriculture sales which are 92.)

30 Health (n.e.c.)

31 Dental assistant (dentist office)
32 Dental technician (laboratory)
33 Health/medical assistant (physician's office)
34 Medical technician (hospital, laboratory, X-ray)
35 Nursing (practical nursing, nurse aide)
36 Other hospital work (orderly, dietary aide)
39 Professional level (M.D., dentist, registered nurse, veterinarian)

40 Home economics (n.e.c.)

41 Baking (commercial)
42 Child care, guidance, teacher's aide
43 Clothing management, textile (tailor, seamstress, dry cleaner) (Note: This category does not include clothing sales which are coded 23.)
44 Food services (chef, cook, waiter, waitress, bus boy, bartender) (Note: This category does not include grocery occupations which are coded 22.)
45 Home furnishings, decorations, upholstery
46 Housing, hotel, motel (desk clerk, bellman, chambermaid, cleaning lady, park attendant)
49 Professional level, proprietor

TRADE AND INDUSTRIAL COURSES (VIC)

50 Trade and Industry (n.e.c.)

51 Appliance--electricity group (n.e.c.)
52 Appliance repair
53 Air conditioning and refrigeration
54 Electric power (lines, motors, generators)
55 Industrial electricity
56 Radio-TV
(Note: This group does not include electric wiring which is code 64 under construction and maintenance.)

57 Automotive group (n.e.c.)

58 Auto body
59 Auto mechanics
60 Auto service (service station attendant)
61 Small (gas) engine repair

62 Construction, maintenance group (n.e.c.)

63 Carpentry
64 Electric wiring
65 Maintenance repair, painting
66 Masonry (bricklaying)
67 Plumbing

68 Metal working group (n.e.c.)

69 Machine operation
70 Ornamental metal fabrication
71 Sheetmetal (heating--ventilating)
72 Welding

73 Cabinetry (millwork, furniture)

74 Commercial art (photography, artist, modeling)

75 Cosmetology (barbering)

76 Printing

79 Professional level, proprietor

80 Technical occupations (n.e.c.)

    81 Chemical, metalurgical laboratory, refinery, manufacturing
    82 Construction related, surveyors, construction drafting
    83 Drafting and design (mechanical, electrical)
    84 Electronics
    85 Environmental
    86 Food processing
    87 Other engineering or science (n.e.c.)
    88 Other specialized (human services, public administration, management, fireman, policeman, etc., mortician)
    89 Professional level, proprietor, engineer

90 Agriculture (n.e.c.)

    91 Agriculture production (farmer, farm labor picker)
    92 Agriculture machinery, products sales and service
    93 Horticulture (landscaping, golf course supervision, nursery operation, gardener)
    94 Forestry, lumbering occupations
    95 No response
    96 Cannot classify (general open-end that cannot be tied to specific occupation)
    98 Professional level, agriculture
    99 Undecided

(Note: Professional level agriculture 98 is out of numerical order. Codes 95, 96, and 99 are the same as standard occupational code.)

Appendix A-5

(A) School Building and Expenditure Data

Name of School District ______________________________

Name of School ______________________________

Respondent's Name ______________________ Phone # __________

Date ______________________________

---

1. Current Insured Value of Building (1974-1975) $__________

2. Original Building:

Year Constructed	Cost	Square Feet
________	$__________	__________Sq. ft.

3. Additions and/or Remodeling*

	Year	Cost of Addition	Square Feet	Remodeling Cost
1st Addition or Remodeling	____	$________	____sq.ft.	$________
2nd Addition or Remodeling	____	________	____	________
3rd Addition or Remodeling	____	________	____	________
4th Addition or Remodeling	____	________	____	________

4. Debt Service (1974-1975) $ __________

5. Total Administrative Expenditures (1974-1975) $ __________

6. Total Current Expenditures (1974-1975)** $ __________

---

* Square feet refers only to additions. Please circle "Addition" or "Remodeling." Only include significant remodeling.

** Exclusive of capital outlay.

(B) All-School Data

	Work Experience Vocational Education	Nonwork Experience Vocational Education	All School
1. Enrollment (A.D.A.)			
2. Number of Teachers			
3. Average Teachers' Salary/yr.			
4. School Year Length (Days)			
5. School Day Length (Hours)			

(C) Work Experience Vocational Education Program Cost Data (1974-1975)

(Please fill in one form for each program)

1. Work Experience Program Title ____________________

2. Number of Teachers in Program-F.T.E. #__________
(F.T.E.--full-time equivalent)

3. Average Annual Salary/Teacher $__________

4. Fringe Benefits as percent of salaries __________%

5. Number of Coordinators for this Program (F.T.E.) #__________

6. Average Annual Salary/Coordinator $__________

7. Travel Expenses for Coordinator(s) $__________

8. Secretarial and Clerical Assistance (F.T.E.
Secretarial #__________

Clerks #__________

If you estimate that one secretary devotes one-eighth of her/his time to this program, enter 1/8th in the appropriate space above.

9. Average Annual Salary/Secretary $__________

Average Annual Salary/Clerk $__________

10. Any other special personnel associated with this program. Please list (e.g., paraprofessional).

	Personnel Title	F.T.E. (This program)	Salary
1.	__________	__________	$__________
2.	__________	__________	__________
3.	__________	__________	__________

11. Number of students in program __________(ADA)
(ADA--Average Daily Attendence)

12. Program Length (in weeks) __________weeks

13. Average Hours/week In-School Laboratory or shop instruction for this program __________hours

230

14. Average hours/week In-School Nonlaboratory or nonshop instruction for this program ________hours

15. Average hours/week of On-the-Job Training (out of school) for this program ________hours

16. Consumable Supplies and Material Costs for this program (1974-1975) $__________yr.

NOTE: Not equipment costs.

If the above information is not available, please list major materials which you judge to be specific to this program.

Materials List:
(Not Equipment)

17. In order to conduct this program, certain basic equipment is probably required irrespective of the number of students in the program. Please provide a list of this equipment starting with the most significant or critical items. Estimate, if possible, the expected life and replacement cost of new equipment.

Equipment List	Expected Life	Replacement Cost*

*NOTE: If insurance values for equipment are available, you could use these, but please note if you do.

18. How many students could simultaneously take this program with this basic equipment in place. #____________

19. Given current space limitations (work stations, seating capacity, etc.) what is the capacity enrollment for this program in your school? #____________

20. For this work experience program, what additional equipment and materials would the school have to purchase to provide the equivalent program as an in-school program offering?

    Equipment List
    (Most significant items only)

21. For this program, what are current equipment repair and rental costs (1974-1975)?

    Repair $____________

    Rental $____________

22. What is the square footage of space used solely by this program?

    sq. ft. ____________

23. What is the square footage of space used by this program shared with other programs?

    sq. ft. ____________

24. What percent of the time is the shared space used solely by this program? ____________%

25. Does this program have an advisory committee? ☐ Yes ☐ No

26. If yes to #25, does committee assist in placement of graduates?

    ☐ Yes ☐ No

(D) Nonwork Experience Vocational Education Program Cost Data (1974-1975)

(Please fill in one for each program)

1. Nonwork Experience Program Title ______________________________

2. Number of Teachers in Program-F.T.E. # ______________
   (F.T.E.--full-time equivalent)

3. Average Annual Salary/Teacher $ ______________

4. Fringe Benefits as percent of salaries ________%

5. Secretarial and Clerical Assistance (F.T.E.)
   Secretarial # ______________

   Clerks # ______________

If you estimate that one secretary devotes one-eighth of her/his time to this program, enter 1/8th in the appropriate space above.

6. Average Annual Salary a. Secretary $_______ b. Clerk $ _________

7. Any other special personnel associated with this program. Please list (e.g., paraprofessional).

	Personnel Title	F.T.E. (This program)	Salary
1.	____________	________________	$ __________
2.	____________	________________	__________
3.	____________	________________	__________

8. Number of students in program __________ (ADA)
   (ADA--Average Daily Attendance)

9. Program Length (in weeks) ___________weeks

10. Average Hours/week In-School Laboratory or shop instruction for this program ___________hours

11. Average hours/week In-School Nonlaboratory or nonshop instruction for this program ___________hours

12. Consumable Supplies and Material Costs for this program (1974-1975)
    $ ___________yr.

NOTE: Not equipment costs.
(CONTINUED)

12. CONTINUED

If the above information is not available, please list major materials which you judge to be specific to this program.

Materials List
(Not Equipment)

13. In order to conduct this program, certain basic equipment is probably required irrespective of the number of students in the program. Please provide a list of this equipment starting with the most significant or critical items. Estimate, if possible, the expected life and replacement cost of new equipment.

Equipment List	Expected Life	Replacement Cost*

*NOTE: If insurance values for equipment are available, you could use these, but please note if you do.

14. How many students could simultaneously take this program with this basic equipment in place? #________________ per period

15. Given current space limitations (work stations, seating capacity, etc.) what is the capacity enrollment for this program in your school? # ________________ per day

16. For this program, what are current equipment repair and rental costs (1974-1975)?

Repair $____________

Rental $____________

17. What is the square footage of space used solely by this program?

sq. ft. ____________

18. What is the square footage of space used by this program shared with other programs?

sq. ft. ________

19. What percent of the time is the shared space used solely by this program? ________________%

20. Does this program have an advisory committee? ☐ Yes ☐ No

21. If yes to #25, does committee assist in placement of graduates?

☐ Yes ☐ No

Appendix A-6

Employer Questionnaire

Name of firm____

Address____

Person answering____________________ Position____________________

Background Data on Firm

1. Main products or services________________________________

____

2. Is this an--

☐ Independent company

☐ Branch or division of larger corporation or organization
↓
a. Approximately how many employees does the total organization have? __________

b. What were the total sales for the parent organization for the last reported year? $____________

3. How many employees are there at this location? ____________

a. What proportion of employees at this location are women? __________

b. What were the total sales at this location for the last year? $__________

Participation in Cooperative Education

4. How many years has your firm hired high school level co-op students? ________years

5. Do co-op students receive any special training or supervision that regular employees do not receive?

☐ Yes ☐ No
↓
a. What type of training or supervision? ____________________________

____

____

6. Do co-op students rotate among different jobs or work primarily at one?

☐ Rotate ☐ Primarily at one

7. Do the supervisors of co-op students make a formal report to the school on their performance?

☐ No ☐ Yes → Do they give students an academic grade? ☐ Yes ☐ No

8. Does someone from the school, usually called a coordinator, visit your firm to check on the performance of co-op students?

☐ Yes ☐ No

↓

a. Approximately how often does the coordinator visit your firm? ____________

9. Approximately what proportion of the co-op students you hire stay on with your firm as regular employees? ____________________________

10. Are the jobs in which co-op students work covered by a union contract?

☐ Yes ☐ No

↓

a. What is the union attitude toward co-op workers?

☐ Encouraging ☐ Neutral ☐ Discouraging

☐ Other (specify)____

11. Listed below are seven advantages to employers often claimed for cooperative education. Please rank these in order of importance to your firm by numbering them 1 through 7. Put a "1" in front of the advantage you consider most important. Place a "2" in front of the one you consider next most important, a "3" in front of the third most important, and so on for all seven.

_____ Reduces costs of recruiting new employees

_____ Shortens time needed for orientation and training

_____ Facilitates evaluation of potential regular employees

_____ Reduces turnover of employees

_____ Improves communications with schools, makes them more responsive to needs of business

_____ Is good for public relations, inhances visibility of firm

_____ Provides a valuable community service

12. Are there any other major advantages other than those listed above? ___________

____

____

13. Are there any major disadvantages from hiring co-op students? _______________

____

____

14. Please enter in the spaces below the following information for each job in which high school level co-op students work:

a. Job title
b. Job duties
c. Number of co-op students
d. Starting salary co-op students
e. Average hours co-ops work
f. Number of regular employees who do same type of work
g. Starting salary regular employees
h. Number of regular employees who were originally co-op placements.

a. Job title	b. Job duties	Co-op Students	Regular Employees
____________	____________________	c. ________	f. ________
____________	____________________	d. $ ________	g. $ ________
____________	____________________	e. ________	h. ________
____________	____________________	c. ________	f. ________
____________	____________________	d. $ ________	g. $ ________
____________	____________________	e. ________	h. ________
____________	____________________	c. ________	f. ________
____________	____________________	d. $ ________	g. $ ________
____________	____________________	e. ________	h. ________
____________	____________________	c. ________	f. ________
____________	____________________	d $ ________	g. $ ________
____________	____________________	e. ________	h. ________

15. If possible, we would like to get some rough estimates of the extra costs or savings to an employer from participating in a co-op program. Listed below are a number of employee-related costs. Please try to compare the average co-op student to an average regular employee who does the same work. Do co-ops cost you more, less, or is there no difference in these costs?

	Co-ops	Cost	No	Amount
	More	Less	Difference	More or Less
a. Recruitment, hiring	☐	☐	☐	$________
b. Training and orientation.	☐	☐	☐	$________
c. Scheduling work times, work loads .	☐	☐	☐	$________
d. Use of materials (wastage)	☐	☐	☐	$________
e. Absenteeism, tardiness.	☐	☐	☐	$________
f. Record keeping, evaluation of performance	☐	☐	☐	$________
g. Supervision	☐	☐	☐	$________
h. Wages, salary	☐	☐	☐	$________
i. Fringe benefits	☐	☐	☐	$________
j. Voluntary turnover of workers . . .	☐	☐	☐	$________
k. Involuntary turnover of workers . .	☐	☐	☐	$________

16. Using the same basis of comparison--the average co-op student compared to an average regular employee who does the same work--who would you rate better on the characteristics listed below? If there is a difference, try to make a rough estimate of the percentage that co-ops are better or worse.

	Co-ops		No	Percent
	Better	Worse	Difference	Better or Worse
a. Technical knowledge	☐	☐	☐	________%
b. Communication skills.	☐	☐	☐	________%
c. Quality of work	☐	☐	☐	________%
d. Quantity of work, output.	☐	☐	☐	________%
e. Proper use of tools and equipment .	☐	☐	☐	________%
f. Cooperation, ability to work with people.	☐	☐	☐	________%
g. Dependability	☐	☐	☐	________%

THANK YOU VERY MUCH FOR YOUR COOPERATION

(Please return in the postage-paid envelope provided)

APPENDIX B

Wage Regressions: Current and Former Students

APPENDIX B-1

Wage Regressions - Current Students

An attempt was made to fit regressions for the current student wage data in a manner similar to that of the former students. Estimation forms were as follows:

$$\text{SWAGE} = a_o + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{SKILL}) + a_9(\text{PREP})$$

$$\text{SWAGE} = a_o + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{SKILL}) + a_9(\text{USE})$$

$$\text{SWAGE} = a_o + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{SKILL}) + a_9(\text{PREP}) + a_{10}(\text{NEW}) + a_{11}(\text{TIME})$$

$$\text{SWAGE} = a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{SKILL}) + a_9(\text{USE}) + a_{10}(\text{NEW}) + a_{11}(\text{TIME})$$

where,

SWAGE = starting wage of most current job;
CWAGE = last/current wage of most current job;
COOP = binary variable for co-op status;
WKSTUDY = binary variable for workstudy status;
SEX = binary variable for males;
RACE = binary variable for white students;
SUBURB = binary variable for suburban area;
RURAL = binary variable for rural area;
GRADES = student evaluation of their relative grades;
SKILL = binary variable for required skill of job;
PREP = binary variable for degree of preparation received for job;
USE = binary variable for the use of school-acquired knowledge on job;
NEW = binary variable for new skills learned on job;
TIME = some measure of length of experience--three different forms, as follows:

JMONTHS = number of months working,
AVGJOB = average length of time on any job,
WEEKS = length of time on given job.

These regressions do not confirm the previously recounted results concerning current student wages. The two formulations for estimating starting wages show that the co-op students earn significantly less than the part-time students. For current wages, the results are mixed; four of the six regressions show the CO-OP coefficient to be negative but insignificant, while the remaining two show the coefficient to be negative and significant.

Other perverse results are apparent. For example, in all formulations the variable for race is negative and significant; this indicates that whites are earning less than blacks. The experience variables are also negative and significant, indicating that job seniority causes wages to decrease. Actual results are presented in Tables A2-1 and A2-2.

These results, however, cannot be accepted with confidence. Examination of the residuals of the equation uncovers specifications in the model as formulated; some unknown relevant variable has been omitted from the model. This omission could easily account for the obviously perverse results, and could also cause inaccuracy and bias in the values of the coefficients of interest for this study. Thus, while the results contradict the related findings of this study, the contradictions must be regarded skeptically.

The first formulation for each wage variable expresses the wage variable as influenced by the student's ability, the skill level of the associated position, and co-op/nonco-op status. In the appropriate cases, accumulated experience and additional training are also included. Controlling variables have been included to account for wage differentials based on sex, race, and the relative cost of living in urban vs. nonurban areas.

Parallel equations were computed with an additional variable to further control for the degree to which job preparation was adequate and the extent to which the job was related to area of occupational training. Because these two variables proved to be highly correlated, separate regressions were evaluated for each. On an overall basis, results are no less ambiguous than those already reported.

Although the coefficient of the co-op variable was positive in the majority of cases (as would be expected), it was never significant. The coefficient of the work-study variable, on the other hand, demonstrated highly erratic behavior over the spectrum of equations. It ranged from negatively significant (with a value of -.26) to positively significant (with a value of .37); insignificant coefficient values ranged from low negative (-.06) to relatively high positive values (.87).

The coefficient of the dummy variable for the skill level of the position was positive (as expected) in all cases, but only in rare instances was it significant. The preparation and relatedness variables fared no better--though primarily positive in sign, the coefficients of these variables were never significant. In fact, the majority of the remaining variables had coefficients which were neither repeatedly significant nor consistent in sign.

Appendix Table B-1A

Wage Regression: Current Students

Dependent Variable (N of Cases)	CONSTANT	CO-OP	WRKSTUDY	SEX	RACE	SUBURB	RURAL	GRADES	SKILL	PREP	USE	R^2
SWAGE (1134)	2.40	-.42* (.11)	.11 (.16)	.18 (.11)	-.32* (.11)	.27* (.11)	-.04 (.15)	.02 (.05)	.03 (.13)	.14 (.10)	-	.033*
SWAGE (1134)	2.39	-.42* (.11)	.10 (.16)	.19 (.11)	-.32* (.11)	.28* (.11)	-.04 (.15)	.03 (.05)	.02 (.13)	-	.16 (.10)	.033*

Appendix Table B-1B

Wage Regressions: Current Students

Dependent Variable (N of Cases)	CONSTANT	CO-OP	WRKSTUDY	SEX	RACE	SUBURB	RURAL	GRADES	SKILL	PREP	USE	NEW	AVGJOB	JMONTHS	WEEKS	R^2
CWAGE (1117)	4.13	-.25 (.14)	.04 (.21)	.19 (.14)	-.33* (.14)	.07 (.14)	-.01 (.19)	.05 (.13)	-.34* (.17)	.22 (.13)	-	-.05 (.13)	-	-.14* (.03)	-	.044*
CWAGE (1117)	4.16	-.23 (.14)	.02 (.21)	.18 (.14)	-.34* (.14)	.07 (.14)	-.00 (.19)	.07 (.07)	-.34 (.17)	-	.09 (.13)	-.05 (.13)	-	-.14* (.03)	-	.042*
CWAGE (1117)	3.91	-.23 (.14)	.02 (.21)	.17 (.14)	-.36* (.14)	.03 (.14)	-.05 (.19)	.06 (.07)	-.38* (.17)	.20 (.13)	-	-.01 (.13)	-.13* (.02)	-	-	.051*
CWAGE (1117)	3.95	-.21 (.14)	.01 (.21)	.16 (.14)	-.37* (.14)	.03 (.14)	-.04 (.19)	.08 (.07)	-.37* (.17)	-	.06 (.13)	-.02 (.13)	-.13* (.02)	-	-	.049*
CWAGE (1097)	3.32	-.41* (.14)	.00 (.21)	.14 (.14)	-.35* (.14)	.04 (.14)	-.08 (.19)	.02 (.07)	-.35* (.17)	.29 (.13)	-	-.02 (.13)	-	-	-.00 (.00)	.028*
CWAGE (1097)	3.37	-.39* (.14)	-.01 (.21)	.13 (.14)	-.37* (.14)	.03 (.14)	-.07 (.19)	.04 (.07)	-.34* (.17)	-	.10 (.13)	-.03 (.13)	-	-	-.00 (.00)	.024*

APPENDIX B-2

Single Equation Wage Regressions: Former Students

$$\begin{aligned}\text{SWAGE}_F = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_F)\end{aligned}$$

$$\begin{aligned}\text{SWAGE}_F = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES})^2 + a_9(\text{SKILL}_F) + a_{10}(\text{PREP}_F)\end{aligned}$$

$$\begin{aligned}\text{SWAGE}_F = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES})^2 + a_9(\text{SKILL}) + a_{10}(\text{REL}_F)\end{aligned}$$

$$\begin{aligned}\text{FWAGE}_F = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES})^2 + a_9(\text{SKILL}_F) + a_{10}(\text{EXP}_F) \\ & + a_{11}(\text{EXP}_F{}^2)\end{aligned}$$

$$\begin{aligned}\text{FWAGE}_F = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_F) + a_{10}(\text{PREP}_F) \\ & + a_{11}(\text{EXP}_F) + a_{12}(\text{EXP}_F{}^2)\end{aligned}$$

$$\begin{aligned}\text{FWAGE}_F = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_F) + a_{10}(\text{REL}_F) \\ & + a_{11}(\text{EXP}_F) + a_{12}(\text{EXP}_F{}^2)\end{aligned}$$

$$\begin{aligned}\text{SWAGE}_L = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_L)\end{aligned}$$

$$\begin{aligned}\text{SWAGE}_L = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_L) + a_{10}(\text{PREP}_L)\end{aligned}$$

$$\begin{aligned}\text{SWAGE}_L = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_L) + a_{10}(\text{REL}_L)\end{aligned}$$

$$\begin{aligned}\text{TWAGE}_L = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_L) + a_{10}(\text{EXP}_L) \\ & + a_{11}(\text{EXP}_L{}^2)\end{aligned}$$

$$\begin{aligned}\text{FWAGE}_L = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_L) + a_{10}(\text{PREP}_L) \\ & + a_{11}(\text{EXP}_L) + a_{12}(\text{EXP}_L{}^2)\end{aligned}$$

$$\begin{aligned}\text{FWAGE}_L = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_L) + a_{10}(\text{REL}_L) \\ & + a_{11}(\text{EXP}_L) + a_{12}(\text{EXP}_L{}^2)\end{aligned}$$

$$\begin{aligned}\text{SWAGE}_C = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE})\ a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_C) + a_{10}(\text{EXP}_{TC}) \\ & + a_{11}(\text{EXP}_{TC}{}^2)\end{aligned}$$

$$\begin{aligned}\text{SWAGE}_C = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_C) + a_{10}(\text{PREP}_C) \\ & + a_{11}(\text{EXP}_{TC}) + a_{12}(\text{EXP}_{TC}{}^2)\end{aligned}$$

$$\begin{aligned}\text{SWAGE}_C = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_C) + a_{10}(\text{REL}_C) \\ & + a_{11}(\text{EXP}_{TC}) + a_{12}(\text{EXP}_{TC}{}^2)\end{aligned}$$

$$\begin{aligned}\text{FWAGE}_C = {} & a_0 + a_1(\text{COOP}) + a_2(\text{WKSTUDY}) + a_3(\text{SEX}) + a_4(\text{RACE}) + a_5(\text{SUBURB}) \\ & + a_6(\text{RURAL}) + a_7(\text{GRADES}) + a_8(\text{GRADES}^2) + a_9(\text{SKILL}_C) + a_{10}(\text{EXP}_C) \\ & + a_{11}(\text{EXP}_C{}^2) + a_{12}(\text{EXTRAIN})\end{aligned}$$

$$\begin{aligned}\mathrm{FWAGE}_C = {} & a_0 + a_1(\mathrm{COOP}) + a_2(\mathrm{WKSTUDY}) + a_3(\mathrm{SEX}) + a_4(\mathrm{RACE}) + a_5(\mathrm{SUBURB}) \\ & + a_6(\mathrm{RURAL}) + a_7(\mathrm{GRADES}) + a_8(\mathrm{GRADES}^2) + a_9(\mathrm{SKILL}_C) + a_{10}(\mathrm{PREP}_C) \\ & + a_{11}(\mathrm{EXP}_C) + a_{12}(\mathrm{EXP}_C{}^2) + a_{13}(\mathrm{EXTRAIN})\end{aligned}$$

$$\begin{aligned}\mathrm{FWAGE}_C = {} & a_0 + a_1(\mathrm{COOP}) + a_2(\mathrm{WKSTUDY}) + a_3(\mathrm{SEX}) + a_4(\mathrm{RACE}) + a_5(\mathrm{SUBURB}) \\ & + a_6(\mathrm{RURAL}) + a_7(\mathrm{GRADES}) + a_8(\mathrm{GRADES}^2) + a_9(\mathrm{SKILL}_C) + a_{10}(\mathrm{REL}_C) \\ & + a_{11}(\mathrm{EXP}_C) + a_{12}(\mathrm{EXP}_C{}^2) + a_{13}(\mathrm{EXTRAIN})\end{aligned}$$

$$\begin{aligned}\mathrm{FWAGE}_C = {} & a_0 + a_1(\mathrm{COOP}) + a_2(\mathrm{WKSTUDY}) + a_3(\mathrm{SEX}) + a_4(\mathrm{RACE}) + a_5(\mathrm{SUBURB}) \\ & + a_6(\mathrm{RURAL}) + a_7(\mathrm{GRADES}) + a_8(\mathrm{GRADES}^2) + a_9(\mathrm{SKILL}_C) + a_{10}(\mathrm{EXP}_T) \\ & + a_{11}(\mathrm{EXP}_T{}^2) + a_{12}(\mathrm{EXTRAIN})\end{aligned}$$

$$\begin{aligned}\mathrm{FWAGE}_C = {} & a_0 + a_1(\mathrm{COOP}) + a_2(\mathrm{WKSTUDY}) + a_3(\mathrm{SEX}) + a_4(\mathrm{RACE}) + a_5(\mathrm{SUBURB}) \\ & + a_6(\mathrm{RURAL}) + a_7(\mathrm{GRADES}) + a_8(\mathrm{GRADES}^2) + a_9(\mathrm{SKILL}_C) + a_{10}(\mathrm{PREP}_C) \\ & + a_{11}(\mathrm{EXP}_T) + a_{12}(\mathrm{EXP}_T{}^2) + a_{13}(\mathrm{EXTRAIN})\end{aligned}$$

$$\begin{aligned}\mathrm{FWAGE}_C = {} & a_0 + a_1(\mathrm{COOP}) + a_2(\mathrm{WKSTUDY}) + a_3(\mathrm{SEX}) + a_4(\mathrm{RACE}) + a_5(\mathrm{SUBRUB}) \\ & + a_6(\mathrm{RURAL}) + a_7(\mathrm{GRADES}) + a_8(\mathrm{GRADES}^2) + a_9(\mathrm{SKILL}_C) + a_{10}(\mathrm{REL}_C) \\ & + a_{11}(\mathrm{EXP}_T) + a_{12}(\mathrm{EXP}_T{}^2) + a_{13}(\mathrm{EXTRAIN})\end{aligned}$$

where,

SWAGE = starting wage of subscripted job;
FWAGE = final/current wage of subscripted job;
COOP = binary variable for co-op status;
WKSTUDY = binary variable for workstudy status;
SEX = binary variable for males;
RACE = binary variable for white students;
SUBURB = binary variable for rural area;
RURAL = binary variable for rural area;
GRADES = students evaluation of their relative grades;
SKILL = binary variable for required skill of subscripted job;
PREP = binary variable for preparation received for subscripted job;
REL = binary variable for relatedness of training to subscripted job;
EXP = length of time on subscripted job;
EXP$_{TC}$ = total post-high school work experience prior to current job;
EXP$_T$ = total post-high school work experience;
EXTRAIN = additional training completed beyond high school;

with subscripts,

F = first job;
L = longest job;
C = current job.

The first formulation for each wage variable expresses the wage variable as influenced by the student's ability, the skill level of the associated position, and co-op/nonco-op status. In the appropriate cases, accumulated experience and additional training are also included. Controlling variables have been included to account for wage differentials based on sex, race, and the relative cost of living in urban vs. nonurban areas.

Parallel equations were computed with an additional variable to further control for the degree to which job preparation was adequate and the extent to which the job was related to area of occupational training. Because these two variables proved to be highly correlated, separate regressions were evaluated for each. On an overall basis, results are no less ambiguous than those already reported.

Although the coefficient of the co-op variable was positive in the majority of cases (as would be expected), it was never significant. The coefficient of the work-study variable, on the other hand, demonstrated highly erratic behavior over the spectrum of equations. It ranged from negatively significant (with a value of -.26) to positively significant (with a value of .37); insignificant coefficient values ranged from low negative (-.06) to relatively high positive values (.87).

The coefficient of the dummy variable for the skill level of the position was positive (as expected) in all cases, but only in rare instances was it significant. The preparation and relatedness variables fared no better--though primarily positive in sign, the coefficients of these variables were never significant. In fact, the majority of the remaining variables had coefficients which were neither repeatedly significant nor consistent in sign. The only two variables that performed well were those for sex and job experience; both variables had coefficients which were repeatedly significant and consistently positive in sign. Actual results can be found in Appendix 1.

Several qualifications should be made concerning these results. In light of the repeated significance of the experience variable, all models should have some representation of all work experience prior to the period of wage measurements. The results of those equations not including such an experience measure may not be reliable. Second, the reader will note that some of the results show a significantly negative quadratic term for either the experience of the grades variables. Such a coefficient implies that, at some maximum point, additional experience will cause the wage rate to decrease! This rather shocking result can easily be explained as a function of the available data set. As mentioned earlier, the sample students have all been out of school for a period of three years or less. In those cases in which the quadratic term is significant, the actual values of the coefficients indicate that the wage rate would begin to fall at sometime after thirty-six months--the range in which the decrease occurs is one for which the sample has no data to demonstrate the expected continuous rise in wages. Thus, the quadratic term could indicate an increasing nonlinear relationship only within the period in question. Extrapolation of these results to experience ranges beyond the period in question is highly suspect.

In summary, neither test of wage variables can confirm that any advantage accrues to co-op students as a result of their work experience. The chi-square analysis did not indicate that cooperative students have higher wages, and the regression analysis showed no significant differential resulting from the co-op status.

APPENDIX TABLE B-2A

Wage Regressions
First Job - Former Students

Dependent Variable (N. of Cases)	CONSTANT	CO-OP	WKSTUDY	SEX	RACE	SUBURB	RURAL	GRADES	SKILL_F	PREP_F	REL_F	EXP_F	EXP_F^2	R^2
SWAGE_F (1048)	1.69	.01 .21	-.05 (.35)	.63* (.21)	-.34 (.23)	-.19 (.22)	-.22 (.25)	.17 (.16)	.27 (.35)	-	.21 (.20)	-	-	.013
SWAGE_F (1048)	1.70	.01 (.21)	-.06 (.35)	.62* (.21)	-.33 (.21)	-.20 (.22)	-.23 (.25)	.17 (.16)	.30 (.35)	.13 (.20)	-	-	-	.013
SWAGE_F (1328)	1.92	.02 (.18)	.12 (.26)	.53* (.17)	-.31 (.20)	-.14 (.19)	-.20 (.21)	.13 (.13)	.25 (.28)	-	-	-	-	.010
FWAGE_F (999)	1.49	.07 (.09)	.24 (.14)	.68* (.09)	-.19 (.10)	-.08 (.10)	-.02 (.11)	.12 (.07)	.29* (.14)	-	-	.04* (.00)	-.00* (.00)	.109*
FWAGE_F (791)	1.24	.13 (.11)	.36* (.18)	.67* (.10)	-.15 (.11)	-.10 (.11)	-.03 (.13)	.14 (.08)	.38* (.17)	.09 (.10)	-	.04* (.00)	-.00* (.00)	.111*
FWAGE_F (791)	1.24	.13 (.11)	.37* (.18)	.68* (.10)	-.15 (.11)	-.09 (.11)	-.02 (.13)	.14 (.08)	.37* (.17)	-	.13 (.10)	.04* (.00)	-.00* (.00)	.112*

APPENDIX TABLE B-2B

Wage Regressions
Longest Job - Former Students

Dependent Variable (N of Cases)	CONSTANT	CO-OP	WKSTUDY	SEX	RACE	SUBURB	RURAL	GRADES	SKILL$_L$	PREP$_L$	REL$_L$	EXP$_L$	EXP$_L^2$	R^2
SWAGE$_L$ (1316)	2.07	-.09 (.05)	-.18* (.08)	.41* (.05)	.03 (.06)	-.06 (.05)	-.06 (.06)	.05 (.04)	.09 (.08)	-	-	-	-	.048*
SWAGE$_L$ (1039)	1.96	-.08 (.05)	-.26* (.09)	.32* (.05)	.06 (.06)	-.04 (.06)	-.08 (.06)	.10* (.04)	.10 (.09)	-.08 (.05)	-	-	-	.046*
SWAGE$_L$ (1039)	1.95	-.09 (.05)	-.26* (.09)	.33* (.05)	.07 (.06)	-.03 (.05)	-.07 (.06)	.09 (.04)	.08 (.09)	-	-.00 (.05)	-	-	.043*
FWAGE$_L$ (934)	1.58	.10 (.07)	.12 (.11)	.66* (.07)	-.06 (.08)	-.04 (.07)	-.01 (.09)	.13* (.05)	.25* (.12)	-	-	.03* (.00)	-.00* (.00)	.129*
FWAGE$_L$ (747)	1.44	.14 (.07)	.14 (.12)	.58* (.07)	-.03 (.08)	-.02 (.08)	-.02 (.09)	.15* (.05)	.34* (.13)	-.01 (.07)	-	.03* (.00)	-.00* (.00)	.129*
FWAGE$_L$ (747)	1.43	.14 (.07)	.15 (.12)	.58* (.07)	-.02 (.08)	-.02 (.08)	-.02 (.09)	.15* (.05)	.34* (.13)	-	.01 (.07)	.03* (.00)	-.00* (.00)	.129*

APPENDIX TABLE B-2C

Wage Regressions
Current Job - Former Students

Dependent Variable (N of Cases)	CONSTANT	CO-OP	WKSTUDY	SEX	RACE	SUBURB	RURAL	GRADES	EXP_{TC}	$SKILL_C$	$PREP_C$	REL_C	R^2
$SWAGE_C$ (1150)	1.93	.13 (.20)	.43 (.31)	.65* (.20)	-.33 (.24)	-.15 (.22)	-.33 (.25)	.17 (.16)	.01* (.00)	.28 (.35)	-	-	.018*
$SWAGE_C$ (916)	1.82	.15 (.24)	.22 (.40)	.76* (.24)	-.37 (.27)	-.22 (.25)	-.29 (.29)	.17 (.16)	.02* (.00)	.24 (.44)	.30 (.23)	-	.024*
$SWAGE_C$ (916)	1.78	.15 (.24)	.23 (.42)	.77* (.24)	-.38 (.27)	-.21 (.25)	-.30 (.29)	.17 (.18)	.02* (.00)	.23 (.44)	-	.35 (.23)	.024*

APPENDIX TABLE B-2D

Wage Regressions
Current Job - Former Students

Dependent Variable (N of Cases)	CONSTANT	CO-OP	WKSTUDY	SEX	RACE	SUBURB	RURAL	GRADES	$SKILL_C$	$PREP_C$	REL_C	EXP_C	EXP_C^2	EXP_T	EXTRAIN
	1.44	.15 (.36)	.67 (.36)	.93* (.22)	-.19 (.25)	-.28 (.25)	-.53 (.30)	.18 (.17)	.30 (.37)	-	-	.07* (.02)	-.00* (.00)	-	-.00 (.02)
	1.23	.19 (.29)	.86 (.48)	1.07* (.27)	-.00 (.30)	-.28 (.29)	-.43 (.35)	.16 (.21)	.26 (.47)	.32 (.27)	-	.07* (.02)	-.00* (.00)	-	-.00 (.02)
	1.25	.21 (.29)	.86 (.48)	1.06* (.28)	-.07 (.30)	.26 (.29)	-.43 (.36)	.17 (.21)	.31 (.47)	-	.12 (.27)	.07* (.02)	-.00* (.00)	-	.00 (.02)
	1.65	.20 (.25)	.61 (.37)	.94* (.24)	-.26 (.27)	-.33 (.26)	-.67 (.31)	.22 (.18)	.21 (.39)	-	-	-	-	.03* (.00)	-.02 (.02)
	1.36	.26 (.30)	.70 (.48)	1.10* (.29)	-.05 (.32)	-.41 (.31)	-.55 (.37)	.21 (.22)	.18 (.49)	.25 (.29)	-	-	-	.03* (.01)	-.02 (.02)
	1.33	.25 (.31)	.69 (.48)	1.12* (.29)	-.09 (.31)	-.38 (.31)	-.54 (.37)	.22 (.22)	.17 (.49)	-	.25 (.28)	-	-	.03* (.01)	-.02 (.02)

APPENDIX C

TABLES
REGRESSION ANALYSES, FACTOR ANALYSES

APPENDIX C-1

Regression Analysis: Effects of Holding a Job on Scores on a Test of Job Knowledge

The regression equation included information on the personal characteristics of the students (sex, race, and IQ score), indices of the socioeconomic status of their families, feelings of self-esteem, and school ability. The analysis held these variables constant and tested the independent effects of holding a job either in a school supervised program (co-op or work study) or part-time as compared to not working while in school. Appendix Table C-1 lists the variables that were used, the manner in which they were coded, and the relevant statistics.

The information in Appendix Table C-1 indicates that working while in school did have an independent effect upon the job knowledge scores, and that working as part of a co-op program had slightly more effect than work-study or part-time jobs. The regression coefficients in the table are in raw score form and therefore are influenced by the format of the independent variables. The standardized regression coefficients, which control for the differences in format, are co-op .11, part-time .07, and work-study .05.

In the total equation the variables that explained the largest proportions of the variance were IQ (with a standardized regression coefficient of .30) race (.20), and self-esteem (.17). The correlation with IQ indicates that, to a large degree, the job knowledge test also measured the general mental abilities which IQ tests measure. The interpretations of the correlations with race and feelings of self-esteem are less obvious. The significant finding, however, for the present study is that when the effects of these differences in personal characteristics, family background, and individual attitudes are controlled, holding a job is associated with higher job knowledge scores.

APPENDIX TABLE C-1

Multiple Regression Analysis of Job Knowledge Scores Among Current Students

	Statistics				
Independent Variables and Format	Mean	SD[a]	r	B	SE
Work Status Classification					
Co-op (Co-op = 1, Other = 0)	.33	.47	.04	.71**	.17
Work Study (WS = 1, Other = 0)	.09	.29	-.01	.49*	.24
Part-time (PT = 1, Other = 0)	.37	.48	.07	.46**	.17
No Job (No Job = 0, enters intercept)				I	
Personal Characteristics					
Sex (Male = 1, Female = 0)	.40	.49	.08	.74**	.13
Race (White = 1, Other = 0)	.65	.48	.30	1.35**	.16
IQ (Standardized scale)	49.94	9.85	.44	.10**	.01
Socioeconomic Indices					
I: Occupation-education (factor score)	49.94	7.86	.19	.02*	.01
II: Expensive possession (factor score)	49.97	8.30	.16	-.00	.01
III: Educational resources (factor score)	49.84	7.34	.21	.01	.01
Personal Attitudes					
II: Self-esteem (factor score)	49.75	8.06	.25	.07**	.01
School ability (sum Q 27, 28, 35)	12.00	2.08	.23	.16**	.03
Dependent Variable Job Knowledge Score	11.16	3.15			
Intercept				-2.03	2.65
Multiple $\bar{R}^b$			.54		
Explained Variance $(\bar{R}^2)^b$			.29		
Number of Observations			1906		

[a] SD = standard deviation of mean, r = zero order correlation of independent and dependent variables, B = net regression coefficient, SE = standard error of coefficient, I = values enter intercept term.

[b] Corrected for degrees of freedom.

*Significant at .05 level; **significant at .01 level or less.

APPENDIX C-2

Varimax Rotation of Factor Matrix for Responses to Attitudinal Questions

A preliminary analysis of items that dealt with students' attitudes toward school indicated that ten of the items were reflected mainly in two factors. The ten items were reanalyzed and two factors were extracted that accounted for 49 percent of the variability in the responses to these items. The factor loadings for these items are presented in Appendix Table C-2.

The first factor has its highest loading on items that refer to the usefulness of the things being studied, how much the students learn, and how interesting courses are. This factor accounts for 29 percent of the variance in responses. The second factor refers mainly to the efforts teachers make to encourage students and to explain material, and how hard the school tries to prepare the students. These factors account about equally for the variability in the items that refer to general satisfaction with education and overall liking for school.

The factor loadings from Appendix Table C-2 were used to generate factor scores for each respondent for the two factors. Like all other factor scores in this report, they were standardized to a mean of 50 and a standard deviation of 10. The respondents were then grouped by the first digit in their scores and a chi square analysis was conducted across the four basic groups. As would be expected, the overall distribution of these scores reflected the scores found for the separate items. Females were usually a little more positive than males, and work study students, both male and female, were a little less positive than the other groups. In general, however, the differences among the groups were not large, and there was no tendency for the cooperative students to perceive their education as more useful or their teachers and schools to be trying harder to educate them.

APPENDIX TABLE C-2

Varimax Rotation of Factor Matrix for Attitudes Toward School Items Among Current Students

School Attitude Items	Factor Loadings I	Factor Loadings II
39. How useful are the things you are studying to you right now?	.78	.18
38. How useful will the things you are studying be when you leave high school?	.75	.20
33. How much are you learning from the courses you are taking this year?	.69	.34
34. How interesting are the courses you are taking this year?	.68	.36
49. Overall, how satisfied are you with the education you are receiving in your courses?	.49	.46
48. How hard are you, yourself, trying to get the preparation you will need when you leave school?	.44	.27
37. How much do your teachers encourage you to learn?	.22	.72
36. How hard do your teachers try to help you understand the material they cover?	.20	.71
47. How hard do you think your school is trying to give you preparation you will need ...?	.32	.47
24. Overall, how well do you like school?	.44	.32
Sum of squared factor loading	2.91	1.96
Percent of total variance explained	29%	20%

APPENDIX C-3

Varimax Rotation of Factor Matrix of Self-Esteem Items, Current Students

The factor patterns seem to reflect the phrasing of the items more than the students' feelings. The eight items in the first factor with loadings of .30 or higher are all positively phrased. The second and third factors are made up mainly of negatively phrased items, plus two which refer to planning one's life or being controlled by events. As with the 'attitude toward school' items, the factor analysis was used to produce factor scores for each respondent for the three identified factors. These scores were standardized to a mean of 50 and a standard deviation of 10. The scores were then compared separately for males and females across the four basic groups of respondents. Only one of these six comparisons approached significance (p = .07)--the first factor among the female work study respondents, who tended to have somewhat lower scores on this factor. Overall, however, these items present no evidence that having various types of work experience while in school had any major impact on how the students feel about themselves.

APPENDIX TABLE C-3

Varimax Rotation of Factor Matrix of Self-Esteem Items Among Current Students

	Factor Loadings		
Self-Esteem Items Q80	I	II	III
a. I am able to do things as well as most ...	.53	.09	.05
b. I have always felt pretty sure my life ...	.52	.04	.22
c. I take a positive attitude toward myself.	.59	.14	.28
d. I would rather decide things when they come up ...	-.11	.36	-.04
e. All in all, I am inclined to think I am a failure.	.25	.58	.18
f. I feel I do not have much to be proud of.	.27	.58	.17
g. I nearly always feel pretty sure of myself ...	.43	.02	.19
h. I seem to be the kind of person who has ...	.24	.37	.32
i. I feel I have a number of good qualities.	.58	.20	.07
j. I wish I could have more respect for myself.	.18	.23	.36
k. I never have any trouble making up my mind ...	.34	-.19	.31
l. There is not much use for me to plan ahead ...	.05	.52	.18
m. I have often had the feeling that it is no use ...	.14	.56	.29
n. At times I feel I am no good at all.	.20	.34	.62
o. I certainly feel useless at times.	.17	.21	.68
p. I have always felt I have more will power ...	.43	.01	.12
q. I feel I am a person of worth, equal ...	.54	.23	.03
Sum of squared factor loadings	2.33	1.80	1.53
Percent of total variance explained	14%	11%	9%

APPENDIX TABLE C-4

Varimax Rotation of Factor Matrix of Items Related to Effects of Holding a Job While in School, Employed Current Students Only

Job Effect Items, Q73	Factor Loadings I	II	III	IV
a. Job causes you to get lower grades.	.48	.05	.07	.03
b. Holding a job helps you to get better grades.	.18	.20	.40	.02
c. Job makes it harder to find time to study.	.66	.04	.15	.01
d. Like school better when you have a job.	.09	.13	.40	.15
e. Job makes your courses more interesting.	.15	.50	.46	.06
f. Job helps you to apply things you study in school.	.06	.77	.16	.14
g. Job makes it harder to take part in school activities.	.47	-.01	-.01	-.09
h. Holding job helped decide what you want to do.	.07	.25	.23	.27
i. Job causes you to feel less a part of the school.	.44	.03	-.08	-.05
j. Job helped you to continue school, not drop out.	.01	.10	.55	.14
k. Holding job helped you to get along with people.	-.03	.05	.19	.36
l. Job helps you to understand better things you study.	.05	.61	.39	.13
m. Get along better with teachers when you have a job.	-.01	.19	.56	.13
n. Job causes you to have less contact with friends.	.51	.07	.03	.01
o. Holding job taught skills not learned in school.	-.03	.06	.03	.38
p. Holding job increased confidence in yourself.	-.02	.07	.13	.63
q. Job makes it harder to do chores at home.	.60	.06	.08	.00
r. Holding job makes you wish done with school.	.09	.09	-.15	-.12
Sum of squared factor loadings	1.78	1.41	1.50	.86
Percent of total variance explained	10%	8%	8%	5%

N = 2203

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